

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Raymond Alvarez Examiner #: 76895 Date: 03/09/04  
Art Unit: 1745 Phone Number: 301 571 2772-1282 Serial Number: 09/995202  
Mail Box and Bldg/Room Location: Remsen 6859 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.  
\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Use of Heat-Treated Electrodes Containing A polyamic acid-PVDF Binder Mixture  
Inventors (please provide full names): Palazzo et al

Earliest Priority Filing Date: 11/27/01

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please, search for subject matter of claims 1-10 & 31-47.

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
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Online Time: _____	Other _____	Other (specify) _____



# STIC Search Report

## EIC 1700

STIC Database Tracking Number 116441

TO: Raymond Alejandro  
Location: REM 6B59  
Art Unit : 1745  
March 15, 2004

Case Serial Number: 09/995202

From: Barba Koroma  
Location: EIC 1700  
REM EO4 A30  
Phone: 571 272 2546

barba.koroma@uspto.gov

### Search Notes

Examiner Alejandro,  
Please find attached results of the search you requested. Various components of the claimed invention as spelt out in the claims were searched in multiple databases.

For your convenience, titles of hits have been listed to help you peruse the results set quickly. This is followed by a detailed printout of records. Please let me know if you have any questions.  
Thanks.



=> file caplus

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FILE COVERS 1907 - 15 Mar 2004 VOL 140 ISS 12  
FILE LAST UPDATED: 14 Mar 2004 (20040314/ED)

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FILE LAST UPDATED: 10 MAR 2004 <20040310/UP>  
MOST RECENT DERWENT UPDATE: 200417 <200417/DW>  
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=> file jicst

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FILE COVERS 1970 TO DATE.

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=> d que

L11	816723	SEA FILE=CAPLUS ABB=ON	PLU=ON	BATTER? OR ELECTRODE? OR DRY CELL OR ELECTROCHEMICAL?
L12	1630	SEA FILE=CAPLUS ABB=ON	PLU=ON	HEAT? (5A)TREAT? (5A)ELECTROD?
L13	2	SEA FILE=CAPLUS ABB=ON	PLU=ON	POLYAMIC(4A)ACID AND PVDF(4A)BI NDER
L15	7579	SEA FILE=CAPLUS ABB=ON	PLU=ON	POLYAMIC(4A)ACID OR PVDF(4A)BIN DER AND BATTER?
L16	823779	SEA FILE=CAPLUS ABB=ON	PLU=ON	L15 OR L13 OR L12 OR L11
L17	253922	SEA FILE=CAPLUS ABB=ON	PLU=ON	(METAL OR CU OR COPPER OR AG OR SILVER) AND L16
L18	3749	SEA FILE=CAPLUS ABB=ON	PLU=ON	L17 AND (POLYAMIDE OR POLYIMIDE OR POLYAMIC)
L22	4342	SEA FILE=CAPLUS ABB=ON	PLU=ON	GALVANIC(5A)CELL
L23	1086	SEA FILE=CAPLUS ABB=ON	PLU=ON	L22 AND L17
L24	7	SEA FILE=CAPLUS ABB=ON	PLU=ON	L23 AND L18
L46	184968	SEA FILE=WPIX ABB=ON	PLU=ON	BATTER? OR (DRY OR GLAVANIC OR ELECTROCHEM?) (5A)CELL AND FLUOR? AND (AG OR SILVER?) AND (LI OR LITHIUM)
L48	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	"SILVER VANADIUM OXIDE"/CN
L49	237	SEA FILE=CAPLUS ABB=ON	PLU=ON	L46 AND (SILVER(5A)VANADIUM(4A) OXIDE OR L48)
L50	27	SEA FILE=CAPLUS ABB=ON	PLU=ON	L49 AND HEAT?
L52	3	SEA FILE=COMPENDEX ABB=ON	PLU=ON	L49 AND HEAT?
L53	2	SEA FILE=JAPIO ABB=ON	PLU=ON	L49 AND HEAT?
L57	34	SEA FILE=CAPLUS ABB=ON	PLU=ON	L24 OR L50
L72	106	SEA FILE=WPIX ABB=ON	PLU=ON	(BATTER? OR (DRY OR GLAVANIC OR ELECTROCHEM?) (5A)CELL) AND FLUO? AND (AG OR SILVER) AND (LI OR LITHIUM)
L73	48	SEA FILE=WPIX ABB=ON	PLU=ON	L72 AND (L48 OR SILVER(4A)VANADIU M(4A)OXIDE)
L74	8	SEA FILE=WPIX ABB=ON	PLU=ON	L73 AND HEAT?

L75 43 DUP REM L57 L74 L53 L52 (4 DUPLICATES REMOVED)

=> d ti 1-43

YOU HAVE REQUESTED DATA FROM FILE 'COMPENDEX, JAPIO, CAPLUS, WPIX' - CONTINUE?  
(Y)/N:y

L75 ANSWER 1 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI High capacity and high rate **batteries** for implantable medical devices

L75 ANSWER 2 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1

TI Method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**

L75 ANSWER 3 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI In situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochemical cells**

L75 ANSWER 4 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Sequential two-part reaction process for the preparation of a cathode material for nonaqueous electrolyte lithium **battery**

L75 ANSWER 5 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Provision of cathode active material for **electrochemical cell** used in, e.g. implantable cardiac defibrillator, involves **heating** of cathode material to convert coating metal to coating of inert metal oxide or lithiated metal oxide.

L75 ANSWER 6 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2

TI **Battery** having a cathode of **silver vanadium oxide** coated to a current collector

L75 ANSWER 7 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Use of **heat**-treated electrodes containing a polyamic acid-PVDF binder mixture

L75 ANSWER 8 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

TI Production of cathode active material, useful in cathode of non-aqueous **electrochemical cell**, comprises **heating** a mixture of a **silver** compound and a vanadium compound in a reduced oxygen atmosphere.

L75 ANSWER 9 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Apparatus and method for purifying water with an immersed **galvanic cell**

L75 ANSWER 10 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Method for preparation of a low surface area, single phase mixed metal oxide cathode active material for an alkali metal **electrochemical**

**cell**

- L75 ANSWER 11 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Preparation of a mixed metal oxide cathode active material by sequential decomposition and combination reactions
- L75 ANSWER 12 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3  
TI Annealing of mixed metal oxide electrodes to reduce polarization resistance
- L75 ANSWER 13 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Metal vanadium oxide particles for **batteries**
- L75 ANSWER 14 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Melt impregnation preparation of mixed metal oxide
- L75 ANSWER 15 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Cathode of mixed-phase metal oxide for nonaqueous alkali metal **batteries**, and its preparation
- L75 ANSWER 16 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
TI **Silver vanadium oxide** composition preparation - by **heat** treating synthesised **silver vanadium oxide**.
- L75 ANSWER 17 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Thermal spray deposited electrode component and method of manufacture
- L75 ANSWER 18 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials
- L75 ANSWER 19 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI High pulse power **battery**
- L75 ANSWER 20 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Preparation of **silver vanadium oxide** cathodes by sol-gel technology
- L75 ANSWER 21 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electronic conductivity and thermoelectric power studies on silver-selenovanadate glassy system for **battery** applications
- L75 ANSWER 22 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Preparation of **silver vanadium oxide** **battery** cathodes
- L75 ANSWER 23 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4  
TI Preparation of **silver vanadium oxide** cathodes from **silver** and **vanadium**-containing compound

- L75 ANSWER 24 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI The short-circuit current and open-circuit voltage of moisture absorbed **polyimide** thin films with different **electrode** materials
- L75 ANSWER 25 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN  
TI Feasibility study of sulphone-based electrolytes for a medium-temperature reserve cell concept.
- L75 ANSWER 26 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Parasitic reactions and the balance of materials in lithium **batteries** for implantable medical devices
- L75 ANSWER 27 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN  
TI Parasitic reactions and the balance of materials in lithium **batteries** for implantable medical devices.
- L75 ANSWER 28 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
TI **Silver vanadium oxide** cathode material -  
useful for increasing **cell** life of **electrochemically**  
**cells**.
- L75 ANSWER 29 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Feasibility study of sulfone-based electrolytes for a medium-temperature reserve cell concept
- L75 ANSWER 30 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Method for synthesis of **silver vanadium** composite  
**oxide**
- L75 ANSWER 31 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Solid-electrolyte **batteries**
- L75 ANSWER 32 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Secondary lithium **batteries**
- L75 ANSWER 33 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Nonaqueous **batteries** with amorphous oxide cathodes
- L75 ANSWER 34 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI **Heat** dissipation from lithium/**silver vanadium**  
**oxide** cells during storage and low-rate discharge
- L75 ANSWER 35 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Lithium/**silver vanadium oxide**  
**batteries** with various **silver** to **vanadium**  
ratios
- L75 ANSWER 36 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN  
TI **HEAT DISSIPATION FROM LITHIUM/SILVER VANADIUM**  
**OXIDE CELLS DURING STORAGE AND LOW-RATE DISCHARGE**.
- L75 ANSWER 37 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Cathodes and their use in **batteries**

L75 ANSWER 38 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Alkaline **battery** seal and protective coating

L75 ANSWER 39 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Apparatus for the determination of oxygen in gases

L75 ANSWER 40 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI Method and apparatus for quantitative determination of oxygen and peroxides or hydroperoxides in liquids

L75 ANSWER 41 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Galvanic cell**

L75 ANSWER 42 OF 43 JAPIO (C) 2004 JPO on STN

TI ELECTROCHEMICAL **BATTERY** HAVING ELECTRODE MADE OF **VANADIUM OXIDE SILVER** COATED ON CURRENT COLLECTOR

L75 ANSWER 43 OF 43 JAPIO (C) 2004 JPO on STN

TI COMPOSITION METHOD FOR PREPARING SINGLE PHASE MIXED METAL OXIDE CATHODE ACTIVE MATERIAL HAVING SMALL SURFACE AREA FOR INCORPORATION INTO ALKALINE METAL ELECTROCHEMICAL **BATTERY**

=> d all 1-43 l75

YOU HAVE REQUESTED DATA FROM FILE 'COMPENDEX, JAPIO, CAPLUS, WPIX' - CONTINUE?  
(Y)/N:y

L75 ANSWER 1 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:81048 CAPLUS

DN 140:114283

ED Entered STN: 01 Feb 2004

TI High capacity and high rate **batteries** for implantable medical devices

IN Ghantous, Dania I.; Pinoli, Allison A.

PA Nanogram Corporation, USA

SO PCT Int. Appl., 112 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM H01M004-34

ICS H01M004-46

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004010520	A1	20040129	WO 2003-US22741	20030722

KOROMA EIC1700



W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-397631P P 20020722

AB Improved **batteries** described herein generally comprise an electrolyte having lithium ions and a cathode comprising submicron metal vanadium oxide particles. In some embodiments, the **battery** demonstrate an accessible current capacity of at least about 220 mAh/g when pulsed in groups of four constant energy pulses at a c.d. of 30 mA/cm<sup>2</sup> to deliver 50 J/pulse. The four pulses of a pulse train are separated by 15 s of rest between each pulse, and there are 6 days between pulse groups, upon discharge down to a pulse discharge voltage of 2 V. In further embodiments, the **batteries** have an average internal elec. resistance of no more than 0.2  $\Omega$  at a c.d. of at least about 30 mA/cm<sup>2</sup>. Furthermore, the **batteries** can have a current capability of at least about 0.4 A/cm<sup>3</sup> **battery** volume. Due to the improved discharge performance, the **batteries** can exhibit no significant voltage delay throughout the life of the **battery** as demonstrated in a three month accelerated discharge test.

ST **battery** high capacity implantable medical device

IT Medical goods

(defibrillators; high capacity and high rate **batteries** for implantable medical devices)

IT **Heat** treatment

(high capacity and high rate **batteries** for implantable medical devices)

IT Primary **batteries**

(lithium; high capacity and high rate **batteries** for implantable medical devices)

IT Thermal decomposition

(photo-; high capacity and high rate **batteries** for implantable medical devices)

IT Heart, disease

(ventricular fibrillation, defibrillators; high capacity and high rate **batteries** for implantable medical devices)

IT 96-49-1, Ethylene carbonate 110-71-4, Dme 112-49-2, Triglyme

616-38-6, Dimethyl carbonate 7439-93-2, Lithium, uses 9003-07-0,

Polypropylene 11105-02-5, **Silver vanadium**

**oxide** 21324-40-3, Lithium hexafluorophosphate 220356-17-2,

**Silver vanadium oxide** Ag<sub>0.3</sub>-2V<sub>2</sub>O<sub>4.5</sub>-6

RL: DEV (Device component use); USES (Uses)

(high capacity and high rate **batteries** for implantable medical devices)

IT 1314-62-1P, Vanadium oxide v<sub>2</sub>o<sub>5</sub>, uses 12036-21-4P, Vanadium oxide vo<sub>2</sub>

12181-74-7P, Vanadium carbide v8c7

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(high capacity and high rate **batteries** for implantable medical devices)

IT 7440-22-4, Silver, uses 7782-42-5, Graphite, uses

RL: MOA (Modifier or additive use); USES (Uses)

(high capacity and high rate **batteries** for implantable medical devices)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

(1) Bi; US 5925125 A 1999

(2) Kambe; US 6106798 A 2000 CAPLUS

(3) Leising; US 5695892 A 1997 CAPLUS

(4) Takeuchi; US 5389472 A 1995 CAPLUS

(5) Takeuchi; US 5498494 A 1996 CAPLUS

L75 ANSWER 2 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1

AN 2003:348731 CAPLUS

DN 138:324148

ED Entered STN: 08 May 2003

TI Method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**

IN Leising, Randolph A.; Takeuchi, Esther S.

PA Wilson Greatbatch, Ltd., USA

SO U.S., 14 pp., Cont.-in-part of U.S. Ser. No. 917,072, abandoned.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01M004-58

NCL 429231200; 429219000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 63

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	----	-----	-----
PI	US 6558845	B1	20030506	US 1999-439872	19991112
	JP 11144731	A2	19990528	JP 1998-251950	19980820
	AU 9880877	A1	19990304	AU 1998-80877	19980821
	US 2002142223	A1	20021003	US 2001-55687	20011026
	US 6696201	B2	20040224		
	US 2002078556	A1	20020627	US 2001-197	20011102
	US 6685752	B2	20040203		
PRAI	US 1997-917072	B2	19970822		
	US 1999-439872	A3	19991112		

AB The present invention is related to an **electrochem. cell** comprising an anode of a Group IA metal and a cathode of a mixed phase metal oxide prepared from a combination of starting materials comprising vanadium oxide and a mixture of at least one of a decomposable **silver**-containing constituent and a decomposable copper-containing constituent. The starting materials are mixed together to form a homogeneous admixt. that is not further mixed once decomposition

- heating** begins to form the product active material. The present cathode material is particularly useful for implantable medical applications.
- ST **battery** cathode mixed phase metal oxide prepn; implantable medical application **lithium battery**
- IT **Fluoropolymers**, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (binder; method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT Prosthetic materials and Prosthetics  
 (cardiovascular implants; method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT Primary **batteries**  
 (lithium; method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT **Battery** anodes  
**Battery** cathodes  
 (method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT Alkali metals, uses  
 RL: DEV (Device component use); USES (Uses)  
 (method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT Carbon black, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT 9002-84-0, Ptfе  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (binder; method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT 7761-88-8, **Silver** nitrate, processes 11099-11-9, Vanadium oxide  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (method of preparation of mixed phase metal oxide for cathodes of alkali metal **batteries**)
- IT 67-68-5, Dmsо, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 616-38-6, Dimethyl carbonate 872-50-4, n-Methylpyrrolidone, uses 7791-03-9, **Lithium** perchlorate 12026-36-7, **Silver vanadium oxide** AgV2O5.5 12057-24-8, Lithia, uses 13453-75-3, **Lithium fluorosulfonate** 13497-94-4, **Silver vanadium oxide** agvo3 14024-11-4, **Lithium** tetrachloroaluminate 14283-07-9, **Lithium** tetrafluoroborate 14485-20-2, **Lithium** tetraphenylborate 15955-98-3, **Lithium** tetrachlorogallate 18424-17-4, **Lithium** hexafluoroantimonate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1,

**Lithium** hexafluoroarsenate 33454-82-9, **Lithium**  
triflate 90076-65-6 132404-42-3 173478-96-1, **Silver**  
**vanadium oxide** Ag0.74V2O5.37

RL: DEV (Device component use); USES (Uses)

(method of preparation of mixed phase metal oxide for cathodes of alkali  
metal **batteries**)

IT 11105-02-5P, **Silver vanadium oxide**  
220356-17-2P, **Silver vanadium oxide**  
Ag0.3-2V2O4.5-6

RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)

(method of preparation of mixed phase metal oxide for cathodes of alkali  
metal **batteries**)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses

RL: MOA (Modifier or additive use); USES (Uses)

(method of preparation of mixed phase metal oxide for cathodes of alkali  
metal **batteries**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium,  
uses 12597-68-1, Stainless steel, uses

RL: MOA (Modifier or additive use); USES (Uses)

(powder; method of preparation of mixed phase metal oxide for cathodes of  
alkali metal **batteries**)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Anon; EP 0478303 1990 CAPLUS
- (2) Anon; EP 0618630 A1 1994 CAPLUS
- (3) Crespi; US 5221453 A 1993 CAPLUS
- (4) Crespi; US 5895733 A 1999 CAPLUS
- (5) Crespi; US 5955218 A 1999 CAPLUS
- (6) Leising, R; Chem Matr 1994, V6, P489 CAPLUS
- (7) Liang; US 4310609 A 1982 CAPLUS
- (8) Liang; US 4391729 A 1983 CAPLUS
- (9) Muffoletto; US 5716422 A 1998 CAPLUS
- (10) Takeuchi; US 5435874 A 1995 CAPLUS
- (11) Takeuchi; US 5472810 A 1995 CAPLUS
- (12) Takeuchi; US 5498494 A 1996 CAPLUS
- (13) Takeuchi; US 5516340 A 1996 CAPLUS
- (14) Takeuchi; US 5545497 A 1996 CAPLUS
- (15) Takeuchi; US 5670276 A 1997 CAPLUS

L75 ANSWER 3 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:435148 CAPLUS

DN 138:388239

ED Entered STN: 06 Jun 2003

TI In situ thermal polymerization method for making gel polymer  
**lithium ion rechargeable electrochemical cells**

IN Xing, Weibing; Takeuchi, Esther S.

PA USA

SO U.S. Pat. Appl. Publ., 9 pp.  
CODEN: USXXCO

DT Patent

LA English

KOROMA EIC1700

IC ICM H01M010-40

ICS H01M004-58; H01M004-66

NCL 429303000; 429189000; 429231800; 429245000; 429231100; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003104282	A1	20030605	US 2001-883	20011115
PRAI	US 2001-883		20011115		

AB A single step, in situ curing method for making gel polymer **lithium** ion rechargeable cells and **batteries** is disclosed. This method used a precursor solution consisting of monomers with multiple functionalities such as multiple acryloyl functionalities, a free-radical generating activator, nonaq. solvents such as ethylene carbonate and propylene carbonate, and a **lithium** salt such as LiPF<sub>6</sub>. The electrodes are prepared by slurry-coating a carbonaceous material such as graphite onto an anode current collector and a **lithium** transition metal oxide such as LiCoO<sub>2</sub> onto a cathode current collector, resp. The electrodes, together with a highly porous separator, are then soaked with the polymer electrolyte precursor solution and sealed in a cell package under vacuum. The whole cell package is **heated** to in situ cure the polymer electrolyte precursor. The resulting **lithium** ion rechargeable cells with gelled polymer electrolyte demonstrate excellent electrochem. properties such as high efficiency in material utilization, high Coulombic efficiency, good rate capability, and good cyclability.

ST **lithium battery** gel polymer electrolyte in situ thermal polymn

IT **Battery** electrolytes  
(in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT Carbon black, uses  
Coke  
RL: DEV (Device component use); USES (Uses)  
(in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT Secondary **batteries**  
(**lithium**; in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT Polymerization  
(thermal; in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses  
RL: DEV (Device component use); USES (Uses)  
(anode current collector; in-situ thermal polymerization method for making gel

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polymer **lithium** ion rechargeable **electrochem. cells**)

IT 7440-44-0, Carbon, uses  
 RL: DEV (Device component use); USES (Uses)  
 (glassy; in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide 2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 3006-86-8, 1,1-Bis(tert-butylperoxy)cyclohexane 15667-10-4, 1,1-Bis(tert-amylperoxy)cyclohexane  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (in-situ thermal polymerization method for making gel polymer **lithium** ion rechargeable **electrochem. cells**)

IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 556-65-0, **Lithium** thiocyanate 685-91-6, n,n-Diethylacetamide 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide nio, uses 1314-62-1, Vanadia, uses 1317-37-9, Iron sulfide Fes 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 2923-17-3 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 7784-01-2, **Silver** chromate 7789-19-7, Copperfluoride cuf2 7791-03-9, **Lithium** perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11105-02-5, **Silver vanadium oxide** 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride 11115-78-9, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12031-65-1, **Lithium** nickel oxide LiNiO2 12039-13-3, Titanium sulfide (TiS2) 12057-17-9, **Lithium** manganese oxide LiMn2O4 12057-24-8, Lithia, uses 12068-85-8, Iron sulfide Fes2 12162-79-7, **Lithium** manganese oxide LiMnO2 12162-92-4, **Lithium** vanadium oxide LiV2O5 12190-79-3, Cobalt **lithium** oxide CoLiO2 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide 12789-09-2, Copper vanadium oxide 12795-09-4, Copper telluride 13453-75-3 13463-67-7, Titanium oxide, uses 14024-11-4, **Lithium** tetrachloroaluminate 14283-07-9, **Lithium** tetrafluoroborate 14485-20-2, **Lithium** tetraphenylborate 15955-98-3, **Lithium** tetrachlorogallate 18424-17-4, **Lithium** hexafluoroantimonate 20667-12-3, **Silver** oxide ag2o 21324-40-3, **Lithium** hexafluorophosphate 22205-45-4, Copper sulfide cu2s 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** triflate 35363-40-7, Ethyl propyl carbonate 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 51311-17-2, Carbon **fluoride** 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium

selenide 66675-60-3, Chromium selenide 90076-65-6 115028-88-1  
 131344-56-4, Cobalt lithium nickel oxide 132404-42-3  
 135751-98-3, Vanadium selenide 155645-82-2, Silver oxide ag2o2  
 162124-03-0, Niobium telluride 181183-66-4, Copper Silver  
 vanadium oxide 188029-35-8, Lithium titanium  
 oxide Li4-7Ti5O12 423734-10-5, Cobalt lithium nitride  
 Co0.1-0.6Li2.4-2.9N 423734-14-9, Lithium nickel nitride  
 Li2.4-2.9Ni0.1-0.6N 527698-30-2, Copper lithium tin oxide  
 (Cu0.92LiSn0.08O2)

RL: DEV (Device component use); USES (Uses)

(in-situ thermal polymerization method for making gel polymer lithium  
 ion rechargeable **electrochem. cells**)

IT 26426-04-0P, Trimethylolpropane trimethacrylate homopolymer 57592-66-2P,  
 Pentaerythritol tetraacrylate homopolymer 57592-67-3P, Hexanediol  
 diacrylate homopolymer 64401-02-1P, Bisphenol A-ethylene oxide adduct  
 diacrylate 67653-78-5P, Dipentaerythritol hexaacrylate homopolymer  
 82200-28-0P, Dipentaerythritol pentaacrylate homopolymer 85887-85-0P,  
 Ethoxylated trimethylolpropane triacrylate homopolymer 103315-68-0P,  
 Di(trimethylolpropane)tetraacrylate homopolymer 117223-60-6P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)

(in-situ thermal polymerization method for making gel polymer lithium  
 ion rechargeable **electrochem. cells**)

L75 ANSWER 4 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:114196 CAPLUS

DN 138:140081

ED Entered STN: 14 Feb 2003

TI Sequential two-part reaction process for the preparation of a cathode  
 material for nonaqueous electrolyte lithium **battery**

IN Leising, Randolph; Takeuchi, Esther S.

PA Wilson Greatbatch Technologies, Inc., USA

SO Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-48

ICS H01M004-54; C01G031-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1283555	A1	20030212	EP 2002-255594	20020809
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	US 2003059680	A1	20030327	US 2002-214813	20020808
	JP 2003178757	A2	20030627	JP 2002-267410	20020809
PRAI	US 2001-311483P	P	20010809		

AB The current invention provides a method of preparing a cathode material in a  
 sequential two-part reaction process. In the first step, **silver**  
 nitrate and **vanadium oxide** are decomposed by  
**heat** under an inert atmospheric In the second part of the process, the

resulting intermediate material is **heat** treated under an oxidizing atmospheric. The sequential combination of steps produces a highly crystalline **silver vanadium oxide** cathode material which has properties not heretofore exhibited by SVO prepared by prior art methods.

ST lithium **battery** cathode **silver vanadium oxide** prepn

IT Primary **batteries**

(lithium; sequential two-part reaction process for preparation of cathode material for nonaq. electrolyte lithium **battery**)

IT **Battery** cathodes

(sequential two-part reaction process for preparation of cathode material for nonaq. electrolyte lithium **battery**)

IT 1314-34-7, Vanadium oxide v2o3 1314-62-1, Vanadium oxide v2o5, processes 7761-88-8, Silver nitrate, processes 7803-55-6, Ammonium vanadate 12035-98-2, Vanadium oxide vo 12036-21-4, Vanadium oxide vo2 12036-83-8, Vanadium oxide v3o5 12037-42-2, Vanadium oxide v6o13 12503-96-7, Vanadium oxide v4o9 13497-94-4, **Silver vanadium oxide** agvo3 136254-77-8, Vanadium oxide vol.27 240407-10-7

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(sequential two-part reaction process for preparation of cathode material for nonaq. electrolyte lithium **battery**)

IT 12026-36-7, **Silver vanadium oxide** AgV2O5.5

173478-95-0, **Silver vanadium oxide**

Ag0.35V2O5.18 173478-96-1, **Silver vanadium oxide** Ag0.74V2O5.37

RL: DEV (Device component use); USES (Uses)

(sequential two-part reaction process for preparation of cathode material for nonaq. electrolyte lithium **battery**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bi, X; US 6225007 B1 2001 CAPLUS
- (2) Chen, K; US 6130005 A 2000 CAPLUS
- (3) Greatbatch W Ltd; EP 1058326 A 2000 CAPLUS
- (4) Greatbatch W Ltd; EP 1113514 A 2001 CAPLUS
- (5) Greatbatch W Ltd; EP 1146581 A 2001 CAPLUS

L75 ANSWER 5 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-744653 [70] WPIX

DNN N2003-596413 DNC C2003-204612

TI Provision of cathode active material for **electrochemical cell** used in, e.g. implantable cardiac defibrillator, involves **heating** of cathode material to convert coating metal to coating of inert metal oxide or lithiated metal oxide.

DC L03 P42 S05 X16

IN LEISING, R A; TAKEUCHI, E S; LEISING, R

PA (GREW) GREATBATCH TECHNOLOGIES INC WILSON; (LEIS-I) LEISING R; (TAKE-I) TAKEUCHI E S

CYC 34

PI US 2003138697 A1 20030724 (200370)\* 8p H01M004-48



CA 2417080 A1 20030724 (200370) EN H01M004-48  
 EP 1331683 A2 20030730 (200370) EN H01M004-48  
 R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV  
 MC MK NL PT RO SE SI SK TR  
 JP 2004039620 A 20040205 (200411) 38p H01M004-58  
 ADT US 2003138697 A1 Provisional US 2002-351947P 20020124, US 2003-350384  
 20030123; CA 2417080 A1 CA 2003-2417080 20030124; EP 1331683 A2 EP  
 2003-1616 20030124; JP 2004039620 A JP 2003-54923 20030124  
 PRAI US 2002-351947P 20020124; US 2003-350384 20030123  
 IC ICM H01M004-48; H01M004-58  
 ICS B05D005-12; H01M004-06; H01M004-50; H01M004-52; H01M004-54;  
 H01M004-62; H01M004-66; H01M006-16  
 AB US2003138697 A UPAB: 20031030  
 NOVELTY - A cathode active material is provided by mixing the cathode  
 active material into a sol-gel solution of an organic solvent having a  
 coating metal of aluminum, boron, magnesium, manganese, silicon, tin,  
 and/or zirconium. The resulting coated cathode active material is dried to  
 remove the solvent material. The dried coated active material is  
**heated** to convert the coating metal to a coating of inert metal  
 oxide or lithiated metal oxide.  
 DETAILED DESCRIPTION - Provision of a cathode active material  
 comprises providing the cathode active material in granular form, and  
 providing a sol-gel solution of an organic solvent having a coating metal  
 of aluminum, boron, magnesium, manganese, silicon, tin, and/or zirconium.  
 The cathode active material is mixed into the sol-gel solution. The  
 resulting coated cathode active material is dried to remove the solvent  
 material. The dried coated active material is **heated** to convert  
 the coating metal to a coating of inert metal oxide of formula  $MxOy$  or  
 lithiated metal oxide of formula  $LixMyOz$ .  
 $M = Al, B, Mg, Mn, Si, Sn, \text{ and/or } Zr;$   
 $x (MxOy) = 1 \text{ or } 2;$   
 $y (MxOy) = 1-3;$   
 $x (LixMyOz) = 1;$   
 $y (LixMyOz) = 1 \text{ or } 2;$   
 $z = 1-4.$   
 INDEPENDENT CLAIMS are also included for:  
 (a) an **electrochemical cell** comprising an anode  
 of an alkali metal, a cathode of a cathode active material of the  
 invention, a nonaqueous electrolyte activating the anode and the cathode;  
 and  
 (b) an implantable medical device comprising a device housing, a  
 control circuitry, an **electrochemical cell**, and a lead  
 connecting the device housing to a body part intended to be assisted by  
 the medical device.  
 The **electrochemical cell** powers the control  
 circuitry both during a device monitoring mode to monitor the physiology  
 of the body part and a device activation mode to provide the therapy to  
 the body part.  
 USE - For an **electrochemical cell** used in  
 implantable medical device, e.g. cardiac defibrillator (claimed).  
 ADVANTAGE - The method can reduce voltage delay and reactivity of the  
 active particles during long-term cell discharge since the cathode active

material is isolated from the electrolyte.

DESCRIPTION OF DRAWING(S) - The figure is a flow chart illustrating the processing steps for coating a particle of active material with a metal oxide.

Dwg.1/3

FS CPI EPI GMPI

FA AB; GI

MC CPI: L03-E01B8A

EPI: S05-A01B; S05-A01C; X16-E01C; X16-E01C1; X16-E01E; X16-E02; X16-E09

L75 ANSWER 6 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2

AN 2002:486328 CAPLUS

DN 137:49674

ED Entered STN: 28 Jun 2002

TI **Battery** having a cathode of **silver vanadium oxide** coated to a current collector

IN Leising, Randolph A.; Palazzo, Marcus

PA Wilson Greatbatch Ltd., USA

SO Eur. Pat. Appl., 13 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-54

ICS H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 39

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1217674	A2	20020626	EP 2001-310528	20011217
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2003198868	A1	20031023	US 2001-13287	20011210
	JP 2002270185	A2	20020920	JP 2001-402673	20011212
PRAI	US 2000-256504P	P	20001215		

AB The invention is directed to an SVO **electrochem. cell** having high rate capability. The cathode is produced by coating a mixture of an active material, conductive additives, a mixed binder, and an aluminum foil current collector. The mixed binder consists of a mixture of **heat** treated polyamic acid with PVDF. The use of **heat** treated polyamic acid maintains adhesion to the conductive current collector while the PVDF portion of the binder gives flexibility. A particularly preferred couple is of a **Li/SVO** chemical and the binder mixture enables an active slurry of SVO to be coated onto a current collector without delamination.

ST **battery silver vanadium oxide**  
cathode coated current collector

IT **Battery** cathodes  
(**battery** having cathode of **silver vanadium oxide** coated to current collector)

IT **Fluoropolymers**, uses  
Polyamic acids

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- RL: MOA (Modifier or additive use); USES (Uses)  
(binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Epoxy resins, uses  
Polyamides, uses  
Polyazomethines  
Polycarbonates, uses  
Polyesters, uses  
Polyethers, uses  
Polyimides, uses  
Polyketones  
Polyoxymethylenes, uses  
Thermoplastic rubber
- RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorinated**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Silicone rubber, uses
- RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorine**-containing, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber
- RL: MOA (Modifier or additive use); USES (Uses)  
(hexafluoropropene-tetrafluoroethylene-vinylidene **fluoride**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber
- RL: MOA (Modifier or additive use); USES (Uses)  
(hexafluoropropene-vinylidene **fluoride**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Secondary **batteries**  
(**lithium**; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Epoxy resins, uses
- RL: MOA (Modifier or additive use); USES (Uses)  
(methacrylates, **fluorinated**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Heterocyclic compounds
- RL: MOA (Modifier or additive use); USES (Uses)  
(nitrogen, five-membered, polymers, **fluorinated**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber
- RL: MOA (Modifier or additive use); USES (Uses)  
(perfluoroalkyl vinyl ether-tetrafluoroethene, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Ethers, uses
- RL: MOA (Modifier or additive use); USES (Uses)

- (perfluoroalkyl vinyl, tetrafluoroethylene copolymer, binder;  
**battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Synthetic rubber, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(phosphazene, **fluorinated**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(propene-tetrafluoroethylene, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(silicone, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(tetrafluoroethylene-vinylidene **fluoride**, binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Welding of metals  
(ultrasonic; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT Ethers, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(vinyl, hydrocarbon, **fluoroethylene** copolymer; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT 7429-90-5, Aluminum, uses 11105-02-5, **Silver vanadium oxide** 25120-07-4, Polyhexafluoropropylene  
RL: DEV (Device component use); USES (Uses)  
(**battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT 75-02-5D, **Fluoroethylene**, hydrocarbon vinyl ether copolymer  
116-14-3D, Tetrafluoroethylene, perfluoroalkyl vinyl ether copolymer  
9002-83-9, Polychlorotrifluoroethylene 9002-84-0, Ptfе 9011-17-0,  
Hexafluoropropylene-vinylidene **fluoride** 24937-79-9,  
Polyvinylidene **fluoride** 24980-67-4, Polytrifluoroethylene  
24981-14-4, Polyvinyl **fluoride** 25038-71-5,  
Ethylene-tetrafluoroethylene copolymer 25067-11-2, Hexafluoropropylene-  
tetrafluoroethylene copolymer 25101-45-5, Ethylene-  
chlorotrifluoroethylene copolymer 49717-97-7D, 2-Propenoic acid,  
2-methyl-, ion(1-), homopolymer, **fluorinated** 64239-72-1  
RL: MOA (Modifier or additive use); USES (Uses)  
(binder; **battery** having cathode of **silver vanadium oxide** coated to current collector)
- IT 202054-77-1  
RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorinated**, binder; **battery** having cathode of **silver vanadium oxide** coated to current

collector)

L75 ANSWER 7 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:466583 CAPLUS  
 DN 137:35545  
 ED Entered STN: 21 Jun 2002  
 TI Use of **heat**-treated electrodes containing a polyamic acid-PVDF  
 binder mixture  
 IN Palazzo, Marcus; Takeuchi, Esther S.  
 PA USA  
 SO U.S. Pat. Appl. Publ., 14 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM H01M004-62  
 NCL 429217000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002076611	A1	20020620	US 2001-995202	20011127
	EP 1221732	A2	20020710	EP 2001-310020	20011129
	EP 1221732	A3	20020717		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002260668	A2	20020913	JP 2001-402306	20011129
PRAI	US 2000-253972P	P	20001129		
AB	A mixture of polymeric binders that is insol. in nonaq. organic electrolytes activating alkali metal or alkali metal ion <b>electrochem.</b> <b>cells</b> , is described. The mixed binder formulation provides electrodes that are flexible and non-brittle, and cells incorporating the electrodes are dischargeable at elevated temps. A preferred binder formulation is a mixture of polyvinylidene and polyimide binders.				
ST	<b>battery heat</b> treated electrode polyamic acid PVDF binder mixt				
IT	Polyamides, uses Polyazomethines Polycarbonates, uses Polyesters, uses Polyethers, uses Polyketones RL: MOA (Modifier or additive use); USES (Uses) (binder, <b>fluorinated</b> ; use of <b>heat</b> -treated electrodes containing polyamic acid-PVDF binder mixture)				
IT	<b>Fluoropolymers</b> , uses RL: MOA (Modifier or additive use); USES (Uses) (binder; use of <b>heat</b> -treated electrodes containing polyamic acid-PVDF binder mixture)				
IT	<b>Fluoropolymers</b> , uses RL: MOA (Modifier or additive use); USES (Uses) (flexible, rubber; use of <b>heat</b> -treated electrodes containing				

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- polyamic acid-PVDF binder mixture)
- IT Epoxy resins, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorinated**, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Thermoplastic rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorinated**, rubber; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Silicone rubber, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(**fluorine**-containing, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Acetals  
RL: MOA (Modifier or additive use); USES (Uses)  
(formals, polymers, binder, **fluorinated**; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(hexafluoropropene-tetrafluoroethylene-vinylidene **fluoride**, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(hexafluoropropene-vinylidene **fluoride**, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Secondary **batteries**  
(**lithium**; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Epoxy resins, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(methacrylates, **fluorinated**, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Heterocyclic compounds  
RL: MOA (Modifier or additive use); USES (Uses)  
(nitrogen, five-membered, polymers, binder, **fluorinated**; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT Perfluoro compounds  
Vinyl compounds, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(perfluoroalkyl vinyl ether polymers, tetrafluoroethylene copolymer with, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(perfluoroalkyl vinyl ether-tetrafluoroethene, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT **Fluoro** rubber  
RL: MOA (Modifier or additive use); USES (Uses)  
(perfluoroalkyl vinyl ether-tetrafluoroethylene-vinylidene **fluoride**, binder; use of **heat**-treated electrodes

- containing polyamic acid-PVDF binder mixture)
  - IT Ethers, uses
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (perfluoroalkyl vinyl, polymers, tetrafluoroethylene copolymer with, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT Synthetic rubber, uses
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (phosphazene, **fluorinated**, rubber; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT **Fluoro** rubber
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (propylene-tetrafluoroethylene, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT **Fluoro** rubber
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (silicone, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT **Fluoro** rubber
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (tetrafluoroethylene-vinylidene **fluoride**, binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT **Battery** electrodes
    - Binders
    - Primary **batteries**
    - Secondary **batteries**
    - (use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT Carbonaceous materials (technological products)
    - Polyamic acids
    - Polyimides, uses
    - RL: MOA (Modifier or additive use); USES (Uses)
    - (use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
  - IT 116-14-3D, Tetrafluoroethylene, copolymer with perfluorovinylalkyl vinyl ether 9002-83-9, Polychlorotrifluoroethylene 9002-84-0, Ptfе 9011-17-0, Hexafluoropropylene-vinylidene **fluoride** copolymer 24937-79-9, Pvdф 24980-67-4, Polytrifluoroethylene 24981-14-4, Polyvinyl **fluoride** 25038-71-5, Ethylene-tetrafluoroethylene copolymer 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer 25101-45-5, Ethylene-chlorotrifluoroethylene copolymer 25120-07-4, Polyhexafluoropropylene 49717-97-7D, 2-Propenoic acid, 2-methyl-, ion(1-), homopolymer, **fluorinated** 64239-72-1, 2-Propenoic acid, 2-**fluoro**-homopolymer 149643-29-8, **Fluoroethylene** -vinyl ether copolymer 437609-78-4D, fluorinated
  - RL: MOA (Modifier or additive use); USES (Uses)
  - (binder; use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)
- IT 108-32-7, Propylene carbonate 110-71-4 11105-02-5, **Silver vanadium oxide** 29935-35-1, **Lithium** hexafluoroarsenate
  - RL: DEV (Device component use); USES (Uses)

(use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)

IT 68-12-2, Dmf, uses 78-59-1, Isophoron 108-88-3, Toluene, uses 108-94-1, Cyclohexanone, uses 127-19-5, n,n-Dimethylacetamide 872-50-4, n-Methylpyrrolidone, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)

IT 78-93-3, Methyl ethyl ketone, uses 7732-18-5, Water, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (use of **heat**-treated electrodes containing polyamic acid-PVDF binder mixture)

L75 ANSWER 8 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
 AN 2002-502435 [54] WPIX  
 DNN N2002-397780 DNC C2002-142684  
 TI Production of cathode active material, useful in cathode of non-aqueous **electrochemical cell**, comprises **heating** a mixture of a **silver** compound and a vanadium compound in a reduced oxygen atmosphere.

DC E31 E35 L03 X16  
 IN PALAZZO, M; TAKEUCHI, E S  
 PA (GREW) GREATBATCH LTD WILSON; (PALA-I) PALAZZO M; (TAKE-I) TAKEUCHI E S  
 CYC 29  
 PI EP 1220342 A2 20020703 (200254)\* EN 19p H01M004-48  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR  
 US 2002086209 A1 20020704 (200254) H01M004-48  
 CA 2366191 A1 20020628 (200257) EN C01G031-02  
 JP 2002319397 A 20021031 (200304) 56p H01M004-54

ADT EP 1220342 A2 EP 2001-310945 20011228; US 2002086209 A1 Provisional US 2000-259068P 20001228, US 2001-37133 20011227; CA 2366191 A1 CA 2001-2366191 20011224; JP 2002319397 A JP 2001-403165 20011228

PRAI US 2001-37133 20011227; US 2000-259068P 20001228  
 IC ICM C01G031-02; H01M004-48; H01M004-54  
 ICS C01G005-00; C01G031-00; H01M004-06; H01M004-26; H01M004-40; H01M006-14; H01M006-16

AB EP 1220342 A UPAB: 20021014  
 NOVELTY - Production of a cathode active material comprises **heating** a mixture of a **silver** compound and a vanadium compound in a reduced oxygen atmosphere.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:  
 (1) A cathode electrode comprising the active material.  
 (2) A non-aqueous **electrochemical cell** comprising an anode, the cathode, an electrically-insulating separator material and an electrolyte.  
 USE - The cathode active material is used in the cathode of a non-aqueous **lithium electrochemical cell** (claimed) e.g. in an implantable cell powering a cardiac defibrillator which may run under a light load for significant periods interrupted, from time to time, by high rate pulse discharge



ADVANTAGE - The mixture of gamma -phase SVO, epsilon -phase SVO and **silver** provides a cathode of decreased electrical resistance. The cathode exhibits improved rate capability compared to one of a single phase SVO material.

Dwg.0/10

FS CPI EPI  
FA AB; DCN  
MC CPI: E35-N; L03-E01B8A  
EPI: X16-E01C1

L75 ANSWER 9 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:666665 CAPLUS

DN 135:200127

ED Entered STN: 12 Sep 2001

TI Apparatus and method for purifying water with an immersed **galvanic cell**

IN Hradil, George

PA USA

SO U.S., 14 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM C02F001-461

NCL 205745000

CC 61-5 (Water)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6287450	B1	20010911	US 1999-237553	19990126
PRAI	US 1999-237553		19990126		

AB A water purification system and method suitable for use in swimming pools, spas, hot tubs, water storage tanks, wells and water cooling towers employs a **galvanic cell** having a **silver** or **copper** or zinc anode elec. connected to a cathode made from a **metal** of still higher **electrochem.** potential, normally a platinum group **metal** and preferably palladium. A **galvanic cell** of some tens of square centimeters in size and some hundreds of grams in weight liberates sufficient **silver** or **copper** ions so as to treat a multi-thousand liter body of water, such as a swimming pool, for, typically under normal contamination, some months until the anode is consumed. **Copper** and/or **silver** ions liberated from the **galvanic cell** suppress bacterial, fungal and/or algae growth, thus, significantly reducing the amount of chlorine, bromine or other chems. needed to maintain water quality. The invention operates on the current generated by the galvanic action between the dissimilar **metals** of the anode and cathode, and does not require external elec. power.

ST swimming pool water purifn app immersed **galvanic cell**

IT Algae  
Biocides  
Cooling towers  
Swimming pools

KOROMA EIC1700

Water purification  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT **Metals**, biological studies  
Platinum-group **metals**  
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT **Polyamides**, uses  
RL: DEV (Device component use); USES (Uses)  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT Water purification  
(apparatus; apparatus and method for purifying water with an immersed **galvanic cell**)

IT Water purification  
(disinfection; apparatus and method for purifying water with an immersed **galvanic cell**)

IT Water purification  
(**electrochem.**; apparatus and method for purifying water with an immersed **galvanic cell**)

IT 7681-52-9, Sodium hypochlorite 7726-95-6, Bromine, biological studies  
7782-50-5, Chlorine, biological studies  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT 7440-05-3, Palladium, biological studies 7440-06-4, Platinum, biological studies  
7440-22-4, **Silver**, biological studies 7440-50-8, **Copper**, biological studies  
7440-66-6, Zinc, biological studies  
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene 12597-68-1, stainless steel, uses  
RL: DEV (Device component use); USES (Uses)  
(apparatus and method for purifying water with an immersed **galvanic cell**)

IT 7440-03-1, Niobium, biological studies  
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)  
(platinized; apparatus and method for purifying water with an immersed **galvanic cell**)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE  
(1) Anon; GB 1440886 1976 CAPLUS  
(2) Nielsen; US 4416854 1983 CAPLUS

L75 ANSWER 10 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2001:759629 CAPLUS

KOROMA EIC1700

DN 135:306243  
 ED Entered STN: 18 Oct 2001  
 TI Method for preparation of a low surface area, single phase mixed metal  
 oxide cathode active material for an alkali metal **electrochemical**  
**cell**  
 IN Takeuchi, Esther S.; Leising, Randolph A.  
 PA Wilson Greatbatch Ltd., USA  
 SO Eur. Pat. Appl., 21 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM H01M004-48  
 ICS H01M006-16; C01G031-00  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1146581	A2	20011017	EP 2001-303469	20010412
	EP 1146581	A3	20030115		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6566007	B1	20030520	US 2000-549910	20000414
	JP 2001351631	A2	20011221	JP 2001-113703	20010412
PRAI	US 2000-549910	A	20000414		

AB A single phase **silver vanadium oxide** prepared  
 from a mixture of a decomposable **silver salt** and **vanadium**  
**oxide** first **heated** at about 2° to about  
 40° above the decomposition temperature of the mixture followed by a second  
**heating** in a temperature range of about 490° to about 520°  
 is disclosed. The **silver vanadium oxide**  
 material is coupled with a **lithium** anode and activated with a  
 nonaq. electrolyte to provide an improved high energy d.  
**electrochem. cell** having increased pulse voltages and a  
 reduction in voltage delay.

ST **battery** cathode **silver vanadium**  
**oxide**

IT Primary **batteries**  
 (**lithium**; method for preparation of low surface area, single phase  
 mixed metal oxide cathode active material for alkali metal  
**electrochem. cell**)

IT **Battery** cathodes  
 (method for preparation of low surface area, single phase mixed metal oxide  
 cathode active material for alkali metal **electrochem.**  
**cell**)

IT Alkali metal compounds  
 Esters, uses  
 Ethers, uses  
 Lactams  
 Lactones  
 RL: DEV (Device component use); USES (Uses)  
 (method for preparation of low surface area, single phase mixed metal oxide  
 cathode active material for alkali metal **electrochem.**

cell)

IT 108-32-7, Propylene carbonate 110-71-4, Dme 556-65-0, **Lithium**  
thiocyanate 2923-17-3 2923-20-8 7439-93-2, **Lithium**, uses  
7440-02-0, Nickel, uses 7790-69-4, **Lithium** nitrate  
7791-03-9, **Lithium** perchlorate 9003-07-0, Polypropylene  
13453-75-3, **Lithium** fluorosulfonate 14024-11-4,  
**Lithium** tetrachloroaluminate 14283-07-9, **Lithium**  
tetrafluoroborate 14485-20-2, **Lithium** tetraphenylborate  
15955-98-3, **Lithium** tetrachlorogallate 18424-17-4,  
**Lithium** hexafluoroantimonate 21324-40-3, **Lithium**  
hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate  
33454-82-9, **Lithium** triflate 90076-65-6 115028-88-1  
132404-42-3

RL: DEV (Device component use); USES (Uses)

(method for preparation of low surface area, single phase mixed metal oxide  
cathode active material for alkali metal **electrochem.**

cell)

IT 11105-02-5P, **Silver** vanadium oxide  
12026-36-7P, **Silver** vanadium oxide AgV2O5.5  
173478-96-1P, **Silver** vanadium oxide  
Ag0.74V2O5.37 366786-52-9P, **Silver** vanadium  
oxide (Ag0.35V2O5.8)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)

(method for preparation of low surface area, single phase mixed metal oxide  
cathode active material for alkali metal **electrochem.**

cell)

IT 534-16-7, **Silver** carbonate 563-63-3, **Silver** acetate  
1314-62-1, Vanadium pentoxide, reactions 7440-22-4, **Silver**,  
reactions 7761-88-8, **Silver** nitrate, reactions 7783-99-5,  
**Silver** nitrite 20667-12-3, **Silver** oxide ag2o

RL: RCT (Reactant); RACT (Reactant or reagent)

(method for preparation of low surface area, single phase mixed metal oxide  
cathode active material for alkali metal **electrochem.**

cell)

L75 ANSWER 11 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:488749 CAPLUS

DN 135:79459

ED Entered STN: 06 Jul 2001

TI Preparation of a mixed metal oxide cathode active material by sequential  
decomposition and combination reactions

IN Leising, Randolph A.; Takeuchi, Esther S.

PA Wilson Greatbatch Ltd., USA

SO Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-48

ICS H01M004-54

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

KOROMA EIC1700

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1113514	A1	20010704	EP 2000-311738	20001228
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001243955	A2	20010907	JP 2000-401298	20001228
	US 2002006549	A1	20020117	US 2001-746787	20010312
PRAI	US 1999-173407P	P	19991228		
AB	<p>A mixed metal <b>oxide</b>, such as <b>silver vanadium oxide</b>, prepared by sequential decomposition and combination reactions is disclosed. In the case of <b>silver vanadium oxide</b>, the product material is produced from a decomposable salt of <b>silver</b> and <b>vanadium oxide</b> first heated above the decomposition temperature of the <b>silver</b> salt followed by cooling and then a second <b>heating</b> above the decomposition temperature. The product <b>silver vanadium oxide</b> material is coupled with a <b>lithium</b> anode and activated with a nonaq. electrolyte to provide an improved high energy d. <b>electrochem. cell</b> having increased pulse voltages and a reduction in voltage delay.</p>				
ST	<b>battery</b> cathode mixed metal oxide sequential decompn;				
IT	<b>silver vanadium oxide</b> cathode <b>battery</b>				
IT	Primary <b>batteries</b>				
	(lithium; preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)				
IT	<b>Battery</b> cathodes				
	Reaction				
	(preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)				
IT	Alkali metals, uses				
	Esters, uses				
	Ethers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)				
IT	Thermal decomposition				
	(sequential; preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)				
IT	108-32-7, Propylene carbonate 110-71-4 556-65-0, <b>Lithium</b>				
	thiocyanate 2923-17-3 2923-20-8 7439-93-2, <b>Lithium</b> , uses				
	7790-69-4, <b>Lithium</b> nitrate 7791-03-9, <b>Lithium</b>				
	perchlorate 13453-75-3, <b>Lithium fluorosulfonate</b>				
	14024-11-4, <b>Lithium</b> tetrachloroaluminate 14283-07-9,				
	<b>Lithium</b> tetrafluoroborate 14485-20-2, <b>Lithium</b>				
	tetraphenylborate 15955-98-3, <b>Lithium</b> tetrachlorogallate				
	18424-17-4, <b>Lithium</b> hexafluoroantimonate 21324-40-3,				
	<b>Lithium</b> hexafluorophosphate 29935-35-1, <b>Lithium</b>				
	hexafluoroarsenate 33454-82-9, <b>Lithium</b> triflate 90076-65-6				
	115028-88-1 132404-42-3				
	RL: DEV (Device component use); USES (Uses)				
	(preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)				

IT 11105-02-5P, **Silver vanadium oxide**  
 12026-36-7P, **Silver vanadium oxide** AgV2O5.5  
 173478-95-0P, **Silver vanadium oxide**  
 Ag0.35V2O5.18 346712-58-1P, **Silver vanadium oxide** (Ag0.8V2O5.4)  
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)

IT 534-16-7, **Silver** carbonate 563-63-3, **Silver** acetate  
 1314-62-1, Vanadium pentoxide, reactions 15525-64-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of mixed metal oxide cathode active material by sequential decomposition and combination reactions)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

- (1) Liang, C; US 4391729 A 1983 CAPLUS
- (2) Medtronic Inc; EP 0856490 A 1998 CAPLUS
- (3) Takeuchi, E; US 5695892 A 1997 CAPLUS

L75 ANSWER 12 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3  
 AN 2000:441547 CAPLUS  
 DN 133:46197  
 ED Entered STN: 30 Jun 2000  
 TI Annealing of mixed metal oxide electrodes to reduce polarization resistance  
 IN Takeuchi, Esther S.; Thiebolt, William C., III  
 PA Wilson Greatbatch Ltd., USA  
 SO Eur. Pat. Appl., 24 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM H01M004-04  
 ICS H01M004-02; H01M004-48  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 63

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1014460	A1	20000628	EP 1999-310114	19991215
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6228534	B1	20010508	US 1998-217215	19981221
JP 2000188098	A2	20000704	JP 1999-363145	19991221
PRAI US 1998-217215	A	19981221		

AB In thermal treatment of electrodes (e.g., transition metal **oxide** electrodes such as **silver vanadium oxide** cathode plates contacted to Ti current collectors) for the purpose of reducing polarization resistance in a **battery**, the electrodes may be exposed an elevated temperature of .gtorsim.225° for .apprx.8 h prior to cell fabrication. The present **heat** temperature regime is particularly useful in cathodes intended for fabrication into a cell

powering an implantable medical device with improved polarization resistance and/or reduced **heat** dissipation.

ST **battery** metal oxide electrode annealing polarization resistance lowering

IT Annealing  
**Battery** cathodes  
Polarization resistance  
(annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Group IIB element oxides  
Group IIIB element oxides  
Group IVB element oxides  
Group VB element oxides  
Group VIB element oxides  
Group VIII element oxides  
Transition metal oxides  
RL: DEV (Device component use); USES (Uses)  
(annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Fluoropolymers, uses  
Polyamides, uses  
Polyimides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(binder; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Carbon black, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(conductive additive; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Prosthetic materials and Prosthetics  
(implants; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Primary **batteries**  
(lithium; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT Group IB element chalcogenides  
Group VIIB element compounds  
RL: DEV (Device component use); USES (Uses)  
(oxides; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT 108-32-7, Propylene carbonate 110-71-4 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1344-70-3, Copper oxide 7439-93-2, Lithium, uses 9003-07-0, Polypropylene 11104-61-3, Cobalt oxide 11105-02-5, **Silver vanadium oxide** 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 12068-85-8, Iron disulfide 12789-09-2, Copper vanadium oxide 29935-35-1, Lithium hexafluoroarsenate 181183-66-4, Copper **silver vanadium oxide**  
RL: DEV (Device component use); USES (Uses)  
(annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT 9002-84-0, Ptfе 24937-79-9, Pvdф 25038-71-5, Ethylene-

tetrafluoroethylene copolymer

RL: TEM (Technical or engineered material use); USES (Uses)

(binder; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses

RL: MOA (Modifier or additive use); USES (Uses)

(conductive additive; annealing of mixed metal oxide electrodes to reduce polarization resistance)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 12597-68-1, Stainless steel, uses

RL: DEV (Device component use); USES (Uses)

(current collector; annealing of mixed metal oxide electrodes to reduce polarization resistance)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bell Communications Res; WO 9317464 A 1993 CAPLUS

(2) Elmwood Sensors; WO 9009669 A 1990 CAPLUS

(3) Greatbatch W Ltd; WO 9627216 A 1996 CAPLUS

(4) Honda Motor Co Ltd; EP 0634803 A 1995 CAPLUS

(5) Sharp Kk; EP 0744782 A 1996 CAPLUS

L75 ANSWER 13 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:553811 CAPLUS

DN 133:137867

ED Entered STN: 11 Aug 2000

TI Metal vanadium oxide particles for **batteries**

IN Horne, Craig R.; Reitz, Hariklia Dris; Buckley, James P.; Kumar, Sujeet; Fortunak, Yu K.; Bi, Xiangxin

PA Nanogram Corporation, USA

SO PCT Int. Appl., 114 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM H01M004-58

ICS H01M004-34; C01F001-00; H01B001-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 49

FAN.CNT 23

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2000046867	A1	20000810	WO 2000-US2653	20000202
	W: CN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6225007	B1	20010501	US 1999-246076	19990205
	US 2001046468	A1	20011129	US 1999-311506	19990513

KOROMA EIC1700



US 6391494 B2 20020521  
 EP 1163703 A1 20011219 EP 2000-905921 20000202  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI  
 JP 2002536286 T2 20021029 JP 2000-597850 20000202  
 PRAI US 1999-246076 A 19990205  
 US 1999-311506 A 19990513  
 WO 2000-US2653 W 20000202  
 AB Metal vanadium oxide particles have been produced with an average diameter less than about 500 nm. The metal vanadium oxide particles have very uniform properties. In some embodiments, **silver vanadium oxide** particles are formed by the **heat** treatment of a mixture of nanoscale **vanadium oxide** and a **silver** compound. Other metal vanadium oxide particles can be produced by similar processes. In other embodiments, laser pyrolysis is used to produce directly metal vanadium oxide composite nanoparticles. To perform the pyrolysis a reactant stream is formed including a vanadium precursor and a second metal precursor. The pyrolysis is driven by energy absorbed from a light beam. Metal vanadium oxide nanoparticles can be incorporated into a cathode of a lithium based **battery** to obtain increased energy densities. Implantable defibrillators can be constructed with lithium based **batteries** having increased energy densities.  
 ST lithium **battery** cathode metal vanadium oxide; **silver vanadium oxide** particle lithium **battery** cathode; laser pyrolysis metal vanadium oxide particle; implantable defibrillator lithium **battery**  
 IT Primary **batteries**  
 (lithium; metal vanadium oxide particles for **batteries**)  
 IT **Battery** cathodes  
**Heat** treatment  
 Nanoparticles  
 (metal vanadium oxide particles for **batteries**)  
 IT Thermal decomposition  
 (photo-; metal vanadium oxide particles for **batteries**)  
 IT 11105-02-5P, **Silver** vanadiumoxide 12026-36-7P,  
**Silver** vanadiumoxide Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub> 220356-17-2P, Silver vanadiumoxide Ag<sub>0.3</sub>-2V<sub>2</sub>O<sub>4.5</sub>-6  
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (metal **vanadium oxide** particles for **batteries**)  
 IT 1314-34-7, Vanadium oxide v<sub>2</sub>o<sub>3</sub> 7727-18-6, Vanadium chloride oxide vo<sub>cl</sub>3 7761-88-8, **Silver** nitrate, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (metal **vanadium oxide** particles for **batteries**)  
 IT 1314-62-1P, Vanadium pentoxide, preparation 12036-21-4P, Vanadium oxide vo<sub>2</sub>  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (metal **vanadium oxide** particles for **batteries**)  
 IT 74-85-1, Ethylene, uses 7440-37-1, Argon, uses 7782-44-7, Oxygen, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(metal vanadium oxide particles for **batteries**)

IT 7440-22-4P, **Silver**, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)  
(nanoparticles; metal **vanadium oxide** particles for  
**batteries**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Koksburg; US 5549880 A 1996 CAPLUS
- (2) Singh; US 5770126 A 1998 CAPLUS
- (3) Takeuchi; US 5498494 A 1996 CAPLUS
- (4) Takeuchi; US 5571640 A 1996 CAPLUS
- (5) Takeuchi; US 5580683 A 1996 CAPLUS

L75 ANSWER 14 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:861127 CAPLUS

DN 134:19379

ED Entered STN: 08 Dec 2000

TI Melt impregnation preparation of mixed metal oxide

IN Takeuchi, Esther S.; Leising, Randolph A.

PA Wilson Greatbatch Ltd., USA

SO Eur. Pat. Appl., 17 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-48

ICS H01M004-54

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1058326	A2	20001206	EP 2000-304689	20000602
	EP 1058326	A3	20010606		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6413669	B1	20020702	US 2000-542227	20000404
	JP 2001015112	A2	20010119	JP 2000-167543	20000605
PRAI	US 1999-137384P	P	19990603		
	US 2000-542227	A	20000404		

AB The present invention is directed to a process for preparing a cathode active material consisting of a single phase of mixed metal oxide, such as a single phase **silver vanadium oxide**. The synthesis technique involves first **heating** the starting materials to melt a decomposable starting constituent. This first **heating** temperature is held for a period of time sufficient to enable the decomposable starting constituent to melt and completely flow throughout and within the other starting materials. Then, the thus produced melt impregnated reaction admixt. is preferably ground to ensure complete homogeneity of the starting materials, followed by **heating** to the decomposition temperature of the decomposable starting constituent. To finish the synthesis, the decomposed admixt. is **heated** to an elevated temperature above the decomposition temperature to provide

KOROMA EIC1700

the single phase mixed metal oxide.

ST **battery** cathode melt impregnation mixed metal oxide;  
**silver vanadium oxide battery**  
cathode

IT Alkali metals, uses  
RL: DEV (Device component use); USES (Uses)  
(anode; melt impregnation preparation of mixed metal oxide)

IT **Battery** cathodes  
Impregnation  
(melt impregnation preparation of mixed metal oxide)

IT Salts, uses  
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(molten; melt impregnation preparation of mixed metal oxide)

IT 67-68-5, DmsO, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 872-50-4, uses 2923-17-3 2923-20-8 7791-03-9, Lithium perchlorate 12057-24-8, Lithium oxide  $Li_2O$ , uses 13453-75-3, Lithium fluorosulfonate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 115028-88-1 132404-42-3  
RL: DEV (Device component use); USES (Uses)  
(melt impregnation preparation of mixed metal oxide)

IT 12026-36-7P, **Silver vanadium oxide** Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub>  
158921-01-8P, Copper **silver vanadium oxide**  
Cu<sub>0.16</sub>Ag<sub>0.67</sub>V<sub>2</sub>O<sub>5.5</sub> 172920-30-8P, Copper **silver vanadium oxide** Cu<sub>0.5</sub>Ag<sub>0.5</sub>V<sub>2</sub>O<sub>5.75</sub>  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(melt impregnation preparation of mixed metal oxide)

IT 509-09-1, Silver pentafluoropropionate 1314-62-1, Vanadium pentoxide, reactions 2923-28-6, Silver triflate 3507-99-1, Silver stearate 3508-01-8, Silver palmitate 7761-88-8, Silver nitrate, reactions 15768-18-0, Silver lactate 18268-45-6, Silver laurate 18268-46-7, Silver myristate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(melt impregnation preparation of mixed metal oxide)

L75 ANSWER 15 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:139829 CAPLUS  
DN 130:170648  
ED Entered STN: 04 Mar 1999  
TI Cathode of mixed-phase metal oxide for nonaqueous alkali metal **batteries**, and its preparation  
IN Leising, Randolph A.; Takeuchi, Ester S.

PA Wilson Greatbatch Ltd., USA  
 SO Eur. Pat. Appl., 14 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM H01M004-58  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 49, 63

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 898317	A2	19990224	EP 1998-306235	19980804
	EP 898317	A3	19991208		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 11144731	A2	19990528	JP 1998-251950	19980820
	AU 9880877	A1	19990304	AU 1998-80877	19980821
PRAI	US 1997-917072	A	19970822		

AB The mixed-phase metal oxide AgpV20q or CuaAgbV20c (p = 0.30-2.0, q = 4.5-6.0, a = 0.01-1.0, b = 0.1-1.0, and c 5.01-6.5) is prepared from a mixture of V oxide and  $\geq 1$  of decomposable Ag-containing constituent and decomposable Cu-containing constituent. After the homogenization mixing, the mixture is **heated** to a decomposition temperature of .apprx.200-500°. The present cathode material is especially useful for implantable medical applications.

ST **silver vanadium oxide battery**  
 cathode; copper **silver vanadium oxide battery** cathode; **battery** alkali metal implantable medical use

IT Medical goods  
 (alkali metal **batteries** with mixed-phase metal oxide cathodes)

IT Primary **batteries**  
 (alkali metal-mixed phase metal oxide for implantable medical use)

IT **Battery** cathodes  
 (mixed-phase copper **silver vanadium oxide** or **silver vanadium oxide** for)

IT 158921-01-8, Copper **silver vanadium oxide**  
 (Cu0.16Ag0.67V2O5.5) 172920-30-8, Copper **silver vanadium oxide** (Cu0.5Ag0.5V2O5.75) 192700-36-0, Copper **silver vanadium oxide** (Cu0.01-1Ag0.1-1V2O5.01-6.5) 220356-17-2, **Silver vanadium oxide** (Ag0.3-2V2O4.5-6)  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (cathodes for nonaq. alkali metal **batteries** and their preparation)

IT 12026-36-7, **Silver vanadium oxide** (AgV2O5.5)  
 13497-94-4, **Silver vanadium oxide** (AgVO3)  
 173478-96-1, **Silver vanadium oxide** (Ag0.74V2O5.37)  
 RL: DEV (Device component use); USES (Uses)  
 (in mixed-phase metal oxide for cathodes for nonaq. alkali metal **batteries**)

KOROMA EIC1700

L75 ANSWER 16 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
 AN 1998-324562 [29] WPIX  
 DNN N1998-253903 DNC C1998-099860  
 TI **Silver vanadium oxide** composition  
 preparation - by **heat** treating synthesised **silver**  
**vanadium oxide**.  
 DC A85 E31 L03 X16  
 IN CHEN, K; CRESPI, A M  
 PA (MEDT) MEDTRONIC INC  
 CYC 25  
 PI EP 849225 A1 19980624 (199829)\* EN 42p C01G031-00  
 R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO  
 SE SI  
 US 5955218 A 19990921 (199945) H01M004-54  
 US 6130005 A 20001010 (200052) H01M004-54  
 EP 849225 B1 20020403 (200230) EN C01G031-00  
 R: DE FR  
 DE 69711570 E 20020508 (200238) C01G031-00  
 ADT EP 849225 A1 EP 1997-310257 19971218; US 5955218 A Provisional US  
 1996-34649P 19961218, US 1997-792416 19970203; US 6130005 A Provisional US  
 1996-34649P 19961218, Div ex US 1997-792416 19970203, US 1998-89819  
 19980603; EP 849225 B1 EP 1997-310257 19971218; DE 69711570 E DE  
 1997-611570 19971218, EP 1997-310257 19971218  
 FDT US 6130005 A Div ex US 5955218; DE 69711570 E Based on EP 849225  
 PRAI US 1997-792416 19970203; US 1996-34649P 19961218; US 1998-89819  
 19980603  
 IC ICM C01G031-00; H01M004-54  
 ICS H01M004-58  
 AB EP 849225 A UPAB: 19980722  
 The preparation of 'as-synthesised' **silver vanadium**  
**oxide**(SVO) is claimed comprising **heat** treating to obtain  
 an SVO composition (I). Also claimed are (1) the composition and (2) use  
 as a cathode material for an **electrochemical cell**, (3)  
 a cathode member, in which the binder material comprises  
 polytetrafluoroethylene, methyl cellulose, ethylene propylene diene  
 terpolymer, polyethylene, polypropylene, polyolefins, **fluorinated**  
 ethylene propylene, polyvinylidene **fluoride** or mixtures; (4) a  
 cathode member comprising the composition, (5) an **electrochemical**  
**cell** comprising an anode and a cathode of (4); (6) an implantable  
 medical device powered by an **electrochemical cell**  
 comprising an **electrochemical cell** body, a  
**lithium** anode, a cathode and an electrolyte; and (7) a method of  
 discharging a **battery**.  
 USE - (I) are cathode materials or members in **electrochemical**  
**cells** (claimed). The **cells** can comprise a  
**lithium** anode and a cathode containing (I) (claimed). Further  
 utility of (I) is in an implantable medical device comprising an  
**electrochemical cell** body containing a **Li**  
 anode, a cathode comprising (I) and an electrolyte (claimed). Typical  
 devices are pace makers, cardioverters and defibrillators. (I) also has  
 use in discharging a **battery** comprising a cell with an anode and

a cathode member containing (I) (claimed). (I) is also a ceramic.  
Dwg.1/21

FS CPI EPI

FA AB; GI; DCN

MC CPI: A12-E09; E35-B; E35-N; L03-E01B5

EPI: X16-B01F1; X16-E01C1; X16-E01G

L75 ANSWER 17 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:650493 CAPLUS

DN 127:284789

ED Entered STN: 13 Oct 1997

TI Thermal spray deposited electrode component and method of manufacture

IN Muffoletto, Barry C.; Paulot, William M.; Spaulding, Joseph E.

PA Wilson Greatbatch Ltd., USA

SO PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C25B009-00

ICS C25B011-04; C25B011-10; C23C004-10; H01M006-04; H01M006-14;

H01M006-00; B23P019-00

CC 72-2 (Electrochemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9736023	A1	19971002	WO 1996-US17558	19961030
	W: AU, JP				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5716422	A	19980210	US 1996-621257	19960325
	AU 9676034	A1	19971017	AU 1996-76034	19961030
	EP 830464	A1	19980325	EP 1996-938723	19961030
	R: DE, FR, GB, IT, NL, SE				
PRAI	US 1996-621257		19960325		
	WO 1996-US17558		19961030		
AB	An electrode component for an <b>electrochem. cell</b> is described wherein the electrode is produced by thermal spraying an electrode active material onto a substrate to coat the substrate. Suitable thermal spraying processes include chemical combustion spraying and elec. <b>heating</b> spraying, using both wire and power processes.				
ST	thermal spray deposited electrode component; electrolytic cell electrode				
IT	Alkali metals, uses				
	RL: DEV (Device component use); USES (Uses)				
	<b>(electrochem. cell</b> with anode from)				
IT	Electrolytic cells				
	(electrode for)				
IT	Electrodes				
	(thermal spray deposited electrode component and method of manufacture)				
IT	Coating process				
	(thermal spraying; thermal spray deposited electrode component and method of manufacture)				
IT	1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses				
	1344-70-3, Copper oxide 7440-44-0, Carbon, uses 7440-44-0D, Carbon,				

KOROMA EIC1700

**fluorinated**, uses 11104-61-3, Cobalt oxide 11115-78-9, Copper sulfide 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 181183-66-4, Copper **silver vanadium oxide**

RL: DEV (Device component use); USES (Uses)  
(cathode active material; **electrochem. cell** with cathode coated with)

IT 7439-93-2, **Lithium**, uses

RL: DEV (Device component use); USES (Uses)  
(**electrochem. cell** with anode from)

IT 16919-18-9D, Hexafluorophosphate, alkali metal salt 16973-45-8D, Hexafluoroarsenate, alkali metal salt

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(**electrochem. cell** with electrolyte from)

IT 67-68-5, Dimethyl sulfoxide, uses 68-12-2, Dimethyl formamide, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-49-1, Ethylene carbonate 109-99-9, Tetrahydrofuran, uses 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(**electrochem. cell** with electrolyte in solvent from)

IT 108-32-7, Propylene carbonate 110-71-4

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(**electrochem. cell** with electrolyte in solvent from mixture of dimethoxyethane and propylene carbonate)

IT 7429-90-5, Aluminum, uses 7440-32-6, Titanium, uses

RL: DEV (Device component use); USES (Uses)  
(electrode substrate; **silver vanadium oxide** -coated electrode substrate for **electrochem. cell**)

IT 11105-02-5, **Silver vanadium oxide**

RL: DEV (Device component use); USES (Uses)  
(**silver vanadium oxide**-coated electrode for **electrochem. cell**)

L75 ANSWER 18 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:340051 CAPLUS

DN 129:68527

ED Entered STN: 06 Jun 1998

TI Open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials

AU Muramoto, Yuji; Nagao, Masayuki; Kosaki, Masamitsu

CS Dep. Electrical & Electronic Engineering, Toyohashi University of Technology, Toyohashi, 441, Japan

SO Proceedings of the International Conference on Properties and Applications of Dielectric Materials, 5th, Seoul, May 25-30, 1997 (1997), Volume 2, 802-805 Publisher: Institute of Electrical and Electronics Engineers, New York, N. Y.

CODEN: 66DKAR

DT Conference  
 LA English  
 CC 38-3 (Plastics Fabrication and Uses)  
 AB The open-circuit voltage (Vo) and short-circuit current (Is) of moisture absorbed Semicofine LP 54 **polyimide** (PI) thin films was studied at room temperature with different **electrode** materials in order to clarify their generation mechanism in terms of internal carrier movement in humid conditions. Here the Vo and Is become large in humid conditions. Since the elec. conduction of moisture absorbed PI may be of an ionic nature, PI with different **electrode** materials forms a **galvanic cell** and a electromotive force is generated by the chemical reaction at the **metal**-PI interface. The short-circuiting of samples and prestress levels affects the Vo properties. The short-circuiting time changes the value of the initial Vo and the time for Vo to arrive at its plateau. The polarity and level of prestressing also changes the Vo properties. These results are related to the distribution of internal carriers in the samples.  
 ST **polyimide** film elec insulator moisture conduction; mechanism conduction **polyimide** film moisture; water absorption **polyimide** elec conduction  
 IT Electric conductivity  
 Electric current carriers  
 (open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials)  
 IT Electric insulators  
 (**polyimide** thin films; open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials)  
 IT **Polyimides**, processes  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (thin films; open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials)  
 IT 7732-18-5, Water, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (absorption; open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials)  
 IT 136218-94-5, Semicofine LP 54  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (thin films; open-circuit voltage and short-circuit current characteristics of moisture absorbed **polyimide** thin films with different **electrode** materials)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

- (1) Greenspan, L; J Res Nat Bur Standard 1977, V81-A, P89
- (2) Melcher, J; IEEE Trans EI 1989, VEI-24(1), P31
- (3) Muramoto, Y; IEE Japan 1995, V115-A, P499
- (4) Muramoto, Y; Proceedings 4th ICPADM 1994, 4113, P219



L75 ANSWER 19 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:15533 CAPLUS  
 DN 126:92114  
 ED Entered STN: 11 Jan 1997  
 TI High pulse power **battery**  
 IN Takeuchi, Esther S.; Walsh, Karen M.  
 PA Wilson Greatbatch Ltd., USA  
 SO U.S., 46 pp., Cont.-in-part of U.S. 5,435,874.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM H01M006-14  
 ICS H01M004-54; H01M004-66  
 NCL 429194000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5580683	A	19961203	US 1994-340669	19941116
	US 5435874	A	19950725	US 1993-146707	19931101
	WO 9615562	A1	19960523	WO 1995-US12326	19950926
	W: AU, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9537272	A1	19960606	AU 1995-37272	19951114
	AU 688983	B2	19980319		
	EP 752162	A1	19970108	EP 1995-935141	19951114
	EP 752162	B1	20020731		
	R: DE, FR, GB, IT, NL, SE				
	JP 09507964	T2	19970812	JP 1995-516034	19951114
PRAI	US 1993-146707	A2	19931101		
	US 1993-169002	B2	19931220		
	US 1994-340669	A	19941116		
	WO 1995-US12326	W	19950926		
AB	The <b>battery</b> comprises an alkali metal-Al alloy anode, a Ni anode current collector, a calendared mixed metal oxide cathode active material pressed on an Al cathode current collector, and a nonaq. electrolyte. The electrolyte solution preferably comprises $\geq 1$ ion-forming alkali metal salt of hexafluorophosphate with the alkali metal of the salt being similar to the alkali metal comprising the anode. Li is the preferred alkali metal. This <b>battery</b> system produces high current pulses and can be housed in a casing having a smaller volume with respect to conventional electrochem. systems. Addnl., the anode/electrolyte solution exhibits decreased voltage delay without comprising <b>heat</b> dissipation.				
ST	alkali metal high pulse power <b>battery</b> ; mixed metal oxide lithium <b>battery</b> ; aluminum cathode current collector lithium <b>battery</b> ; nickel anode current collector lithium <b>battery</b> ; oxide mixed metal lithium <b>battery</b>				
IT	7440-02-0, Nickel, uses RL: DEV (Device component use); PRP (Properties); USES (Uses) (anode current collector of high pulse power lithium <b>battery</b> )				

IT 7439-93-2, Lithium, uses 12798-95-7  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (anode of high pulse power lithium **battery**)

IT 7429-90-5, Aluminum, uses  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (cathode current collector of high pulse power lithium **battery**)

IT 11105-02-5, **Silver vanadium oxide**  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (cathode of high pulse power lithium **battery**)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses  
 11104-61-3, Cobalt oxide 12039-13-3, Titanium disulfide 12789-09-2,  
 Copper vanadium oxide 181183-66-4, Copper **silver**  
**vanadium oxide**  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (cathode of high pulse power lithium **battery**)

IT 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium  
 hexafluoroarsenate  
 RL: DEV (Device component use); USES (Uses)  
 (high pulse power lithium **battery** electrolyte containing)

IT 67-68-5, uses 68-12-2, uses 75-05-8, Acetonitrile, uses 79-20-9,  
 Methyl acetate 96-49-1, Ethylene carbonate 108-32-7, Propylene  
 carbonate 109-99-9, THF, uses 110-71-4, 1,2-Dimethoxyethane  
 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5 143-24-8, Tetraglyme  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (high pulse power lithium **battery** electrolyte containing)

L75 ANSWER 20 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:637425 CAPLUS

DN 125:304957

ED Entered STN: 30 Oct 1996

TI Preparation of **silver vanadium oxide**  
 cathodes by sol-gel technology

IN Takeuchi, Esther S.; Thiebolt, William C., III

PA Wilson Greatbatch Ltd., USA

SO U.S., 6 pp., Cont. of U.S. Ser. No. 980,330, abandoned.  
 CODEN: USXXAM

DT Patent

LA English

IC ICM H01M006-00

NCL 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 49

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5558680	A	19960924	US 1994-271154	19940706
PRAI	US 1992-980330		19921123		

AB The cathodes are prepared by mixing  $\geq 1$  Ag-containing component with  
 $\geq 1$  V-containing component in a gel solution to provide Ag-V oxide in the  
 gel solution, dehydrating the gel solution by **heating** to provide an  
 anhydrous Ag-V oxide, and by forming the obtained anhydrous Ag-V oxide into a

desired shape for the cathode.

ST **battery** cathode **silver vanadium oxide** prepn; sol gel technol **silver vanadium oxide**

IT Cathodes  
(**battery**, preparation of **silver vanadium oxide** cathodes by sol-gel technol.)

IT 11105-02-5P, **Silver vanadium oxide**  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(preparation of **silver vanadium oxide** cathodes by sol-gel technol.)

L75 ANSWER 21 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:760643 CAPLUS

DN 128:77512

ED Entered STN: 06 Dec 1997

TI Electronic conductivity and thermoelectric power studies on silver-selenovanadate glassy system for **battery** applications

AU Venkateswarlu, M.; Reddy, K. Narasimha

CS Department Physics, Osmania University, Hyderabad, 500 007, India

SO Solid State Ionics: New Developments, [Proceedings of the Asian Conference], 5th, Kandy, Sri Lanka, Dec. 2-7, 1996 (1996), 469-474.  
Editor(s): Chowdari, B. V. R.; Dissanayake, M. A. K. L.; Careem, M. A.  
Publisher: World Scientific, Singapore, Singapore.  
CODEN: 65IZAM

DT Conference

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 57, 76

AB Fast ion conducting silver-selenovanadate (AgI-Ag<sub>2</sub>O-SeO<sub>2</sub>-V<sub>2</sub>O<sub>5</sub>) (SSV) system is prepared for various AgI contents by melt quenching technique. The x-ray diffraction technique is used for characterizing the prepared compds. The elec. conductivity studies are carried out at 1 kHz as well as function of frequency up to 13 MHz. The bulk conductivity ( $\sigma_b$   $1.61 \times 10^{-2}$  S/cm) of the sample obtained from impedance studies is compared with the conductivity ( $\sigma$   $2.63 \times 10^{-2}$  S/cm) obtained at 1 KHz. The electronic conductivity ( $\sigma_e$ ), transport number (Tion) and thermoelec. power (TEP) measurements are made on the highest conducting composition of the SSV glass and resp. estimated  $\sigma_e$   $6.31 \times 10^{-8}$  S/cm, Tion 0.999 an **heat** of transport (0.24eV) and type of mobile charge carriers (Ag<sup>+</sup>) in the SSV glass. Various sets of solid state **batteries** are fabricated using the highest conducting SSV glass with different cathode material and **battery** parameters are obtained by measuring th open circuit voltage, polarization and discharge characteristics.

ST electronic cond silver selenovanadate glass; **battery** electrolyte  
silver selenovanadate glassy

IT **Battery** electrolytes  
Ionic conductivity  
Thermoelectricity  
Transference number  
(electronic conductivity and thermoelec. power studies on silver-

- selenovanadate glassy system for **battery** applications)
- IT Electric conductors, glass  
(**silver iodide-silver oxide-selenium oxide-vanadium oxide**; electronic conductivity and thermoelec. power studies on silver-selenovanadate glassy system for **battery** applications)
- IT Primary **batteries**  
(solid-state; electronic conductivity and thermoelec. power studies on silver-selenovanadate glassy system for **battery** applications)
- IT 7446-08-4, Selenium dioxide 20667-12-3, Silver **oxide**  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(containing **silver iodide-selenium oxide-vanadium oxide**; electronic conductivity and thermoelec. power studies on silver-selenovanadate glassy system for **battery** applications)
- IT 1314-62-1, **Vanadium** pentoxide, uses  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(containing **silver iodide-silver oxide-selenium oxide**; electronic conductivity and thermoelec. power studies on silver-selenovanadate glassy system for **battery** applications)
- IT 7783-96-2, Silver iodide  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(containing **silver oxide-selenium oxide-vanadium oxide**; electronic conductivity and thermoelec. power studies on silver-selenovanadate glassy system for **battery** applications)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Chowdhary, B; Solid state ionic devices 1988
- (2) Kunze, D; Fast ionic transport in solids 1973, P460
- (3) Macdonald, J; Impedance Spectroscopy 1987
- (4) Magistris, A; Solid State Ionics 1983, V9/10, P611
- (5) Shahi, K; Physica Status Solidi (a) 1977, V41, P11 CAPLUS
- (6) Suresh, C; Super ionic solids: principles and applications 1981
- (7) Venkateswarlu, M; Ph D Thesis, Osmania University 1995
- (8) Wagner, J; J Chem Phys 1957, V26, P1597 CAPLUS

L75 ANSWER 22 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:420482 CAPLUS

DN 122:165620

ED Entered STN: 17 Mar 1995

TI Preparation of **silver vanadium oxide**  
**battery** cathodes

IN Takeuchi, Esther S.; Thiebolt, William C., III

PA Wilson Greatbatch Ltd., USA

SO Eur. Pat. Appl., 13 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-58

ICS H01M004-48

KOROMA EIC1700

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 49

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 638946	A2	19950215	EP 1994-305032	19940708
	EP 638946	A3	19950524		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, PT, SE				
	JP 07142067	A2	19950602	JP 1994-154890	19940706
	AU 9467385	A1	19950119	AU 1994-67385	19940711
PRAI	US 1993-90574		19930712		
AB	The cathode is prepared by combining the starting materials of $\geq 1$ Ag-containing component with $\geq 1$ V-containing component to form an intimate combination of the starting materials comprising an anhydrous mixed metal oxide, <b>heating</b> this mixed metal oxide to form the Ag-V oxide, and using the formed oxide to form the cathode for a <b>battery</b> having an alkali metal anode.				
ST	<b>silver vanadium oxide battery</b>				
	cathode				
IT	Cathodes				
	(battery, preparation of <b>silver vanadium oxide</b> for)				
IT	<b>11105-02-5P, Silver vanadium oxide</b>				
	RL: PNU (Preparation, unclassified); PREP (Preparation)				
	(preparation for <b>battery</b> cathodes)				

L75 ANSWER 23 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4  
AN 1995:372953 CAPLUS  
DN 122:138185  
ED Entered STN: 24 Feb 1995  
TI Preparation of **silver vanadium oxide**  
cathodes from **silver** and **vanadium**-containing compound  
IN Takeuchi, Esther S.; Thiebolt, William C., III  
PA Wilson Greatbatch Ltd., USA  
SO PCT Int. Appl., 29 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM H01M004-04  
ICS H01M004-54; H01B001-08; C04B035-00; C01G005-00; C01G031-02  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 49

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9429910	A1	19941222	WO 1994-US6205	19940602
	W: AU, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5389472	A	19950214	US 1993-71518	19930603
	AU 9470982	A1	19950103	AU 1994-70982	19940602
	AU 676067	B2	19970227		
	EP 708989	A1	19960501	EP 1994-920065	19940602

KOROMA EIC1700

R: DE, ES, FR, GB, IT, NL, SE  
 JP 09501257 T2 19970204 JP 1994-501933 19940602  
 PRAI US 1993-71518 19930603  
 WO 1994-US6205 19940602  
 AB The starting materials are combined to form an anhydrous Ag-V oxide, which is **heated** in an inert atmospheric to form an O-deficient Ag-V oxide, and the obtained O-deficient Ag-V oxide is formed into the cathodes. The Ag-containing compound is selected from V oxide salt, Ag vanadate, polyvanadic acid, and/or V2O5. This alternate preparation techniques improves chemical control in the formation of a cathode for incorporation into a **battery**.  
 ST **silver vanadium oxide battery**  
 cathode  
 IT Cathodes  
 (battery, preparation of **silver vanadium oxide** for)  
 IT 1314-62-1, **Vanadium oxide**, uses 11099-11-9, Polyvanadic acid  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (in preparation of **silver-vanadium oxide** for **battery** cathode)  
 IT 11105-02-5P, **Silver vanadium oxide**  
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (preparation for **battery** cathode)  
 L75 ANSWER 24 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1995:952323 CAPLUS  
 DN 124:10412  
 ED Entered STN: 30 Nov 1995  
 TI The short-circuit current and open-circuit voltage of moisture absorbed **polyimide** thin films with different **electrode** materials  
 AU Muramoto, Yuji; Mizuno, Yukio; Nagao, Masayuki; Kosaki, Masamitsu  
 CS Department Electrical and Electronic Engineering, Toyohashi University Technology, Toyohashi, 441, Japan  
 SO Proceedings of the International Conference on Properties and Applications of Dielectric Materials, 4th, Brisbane, July 3-8, 1994 (1994), Volume 1, 219-22 Publisher: Institute of Electrical and Electronics Engineers, New York, N. Y.  
 CODEN: 61XAAS  
 DT Conference  
 LA English  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 76  
 AB Relative humidity dependences of the title short-circuit current and open-circuit voltage in the room temperature were measured and their mechanism was discussed. The short-circuit current and open-circuit voltage increased with relative humidity. It is suggested that the short-circuit current flows due to an electromotive force, possibly associated with an oxidation-reduction reaction at **electrode metals**. Since the elec. conduction of moisture absorbed **polyimide** may be ionic, Au-

**Polyimide-Al** system forms a **galvanic cell** and electromotive force is generated by the chemical reaction at the **metal-polyimide** interface. Furthermore, since the conduction current under an external field and the short-circuit current have similar relative humidity dependence, it shows that in moisture absorbed **polyimide** thin films ion an generation may be promoted, which leads to ionic conduction. It is suggested from the open-circuit voltage that the voltage characteristics are affected by a distribution of internal carriers in sample.

ST **polyimide** thin film current voltage; aluminum **polyimide** thin film **electrode**; humidity **polyimide** thin film **electrode**

IT Electric current  
Electric potential

(short-circuit current and open-circuit voltage of moisture-absorbed **polyimide** thin films with different **electrode** materials)

IT **Polyimides**, uses

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(short-circuit current and open-circuit voltage of moisture-absorbed **polyimide** thin films with different **electrode** materials)

IT Humidity

(relative, short-circuit current and open-circuit voltage of moisture-absorbed **polyimide** thin films with different **electrode** materials)

L75 ANSWER 25 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN

AN 1994(29):1369 COMPENDEX

TI Feasibility study of sulphone-based electrolytes for a medium-temperature reserve cell concept.

AU Giwa, C.O. (Defence Research Agency, Farnborough, UK)

SO Journal of Power Sources v 42 n 3 Feb 8 1993.p 389-397

CODEN: JPSODZ ISSN: 0378-7753

PY 1993

DT Journal

TC Application; Experimental

LA English

AB This paper describes a feasibility study on materials for a medium-temperature (178-270 degree C) reserve primary cell, which is activated by melting lithium salt/sulphone mixture in order to provide electrical power. The aim was to define performance parameters for use as a high energy density **battery** capable of current density in the range 5 to 50 mA/cm<sup>2</sup>. The cathode was **silver chromate** and **vanadium oxide** (V6O13). The most promising test cell used silver chromate cathode, di-p-tolylsulphone/lithium perchlorate, electrolyte and lithium-aluminum alloy anode. Maximum current capability was 40 mA/cm<sup>2</sup>. It was observed that voltage drops were rather high due to the high internal resistance of some sulphone-based cells. These cells could power a **heat** sensor. (Author abstract) 8 Refs.

CC 702.1.2 Secondary Batteries; 702.1.1 Primary Batteries; 423.2 Test Methods; 804.2 Inorganic Components; 708.2 Conducting Materials

CT \*Secondary **batteries**; Materials testing; Vanadium compounds; Lithium compounds; Salts; Sulfur compounds; Mixtures; Cathodes; Silver compounds; Lithium **batteries**

ST Sulphone-based electrolytes; Medium temperature reserve cells

ET C; O\*V; V6O13; V cp; cp; O cp

L75 ANSWER 26 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:563964 CAPLUS

DN 119:163964

ED Entered STN: 16 Oct 1993

TI Parasitic reactions and the balance of materials in lithium **batteries** for implantable medical devices

AU Crespi, Ann M.; Skarstad, Paul M.

CS Medtronic, Inc., Minneapolis, MN, 55430, USA

SO Journal of Power Sources (1993), 43(1-3), 119-25  
CODEN: JPSODZ; ISSN: 0378-7753

DT Journal

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 63, 72

AB Parasitic reactions in Li/Ag V oxide **batteries** were studied by microcalorimetry. The exothermic reactions between Li and electrolyte components (LiClO4 or LiAsF6 in propylene carbonate and 1,2-dimethoxyethane) are the largest sources of **heat**. The rate of parasitic reactions of Li needs to be known to ensure that the **batteries** are not anode-limited. Calcn. of balance of materials in the **battery** ensures proper amts. of electrode and electrolyte solution in a constrained volume and dets. electrode dimensions.

ST reaction parasitic lithium **battery** implant; electrolyte lithium exothermic reaction **battery**

IT **Battery** electrolytes  
(lithium salts, reaction of, with lithium, rate and enthalpy of)

IT **Batteries**, primary  
(lithium/**silver vanadium oxide**, parasitic reactions and material balance in)

IT Electrode reaction  
(parasitic, of lithium and **silver vanadium oxide**, mass balance effect on)

IT Anodes  
(**battery**, lithium, dimensions of, parasitic process and mass balance role in relation to)

IT Kinetics, reaction  
(electrochem., of lithium anodes with electrolyte components, mass balance effect on)

IT **Heat** of reaction  
(exothermic, of lithium anodes with electrolyte materials, in implantable **batteries**)

IT 7439-93-2, Lithium, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with electrolyte materials, rate and enthalpy of, in implantable **batteries**)

IT 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 7791-03-9,



Lithium perchlorate (LiClO<sub>4</sub>) 29935-35-1, Lithium hexafluoroarsenate (LiAsF<sub>6</sub>)

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactions of, with lithium, rate and enthalpy of, in implantable **batteries**)

L75 ANSWER 27 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN  
AN 1994(32):3090 COMPENDEX  
TI Parasitic reactions and the balance of materials in lithium **batteries** for implantable medical devices.  
AU Crespi, Ann M. (Medtronic, Inc, Minneapolis, MN, USA); Skarstad, Paul M.  
MT Proceedings of the 6th International Meeting on Lithium Batteries.  
ML Munster, Ger  
MD 10 May 1992-15 May 1992  
SO Journal of Power Sources v 43 n 1-3 pt 1 Mar 15 1993.p 119-125  
CODEN: JPSODZ ISSN: 0378-7753  
PY 1993  
MN 20354  
DT Journal  
TC Application; Experimental  
LA English  
AB The parasitic reactions that occur in lithium/**silver vanadium oxide** cells have been investigated by microcalorimetry. Reactions between lithium and components of the electrolyte are the biggest contributors to **heat** output. The rate of parasitic reaction of lithium needs to be known to ensure that the **batteries** are not anode-limited. This parameter is one of many included in a calculation of the balance of materials in the cell. This calculation ensures the proper balance of electrodes and electrolyte solution in a constrained volume and also determines electrode dimensions. (Author abstract) 10 Refs.  
CC 702.1.1 Primary Batteries; 802.2 Chemical Reactions; 944.6 Temperature Measurements; 708.2 Conducting Materials; 921.6 Numerical Methods; 462.1 Biomedical Equipment (General)  
CT \*Lithium **batteries**; Biomedical equipment; Electrolytes; Calculations; Electrochemical electrodes; Anodes; Lithium; Solutions; Chemical reactions; Calorimetry  
ST Parasitic reaction; Microcalorimetry; Balance of material; Lithium/**silver vanadium oxide** cell; **Heat** output; Electrolyte solution; Implantable medical device; Loss rate  
  
L75 ANSWER 28 OF 43 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
AN 1992-106638 [14] WPIX  
DNN N1992-079933 DNC C1992-049772  
TI **Silver vanadium oxide** cathode material - useful for increasing **cell** life of **electrochemically cells**.  
DC A85 E31 L03 X16  
IN CRESPI, A M; CRESPI, A  
PA (MEDT) MEDTRONIC INC  
CYC 9  
PI EP 478303 A 19920401 (199214)\* 7p

R: DE FR GB NL SE

CA 2051247	A	19920328 (199223)		H01M004-54
JP 04262368	A	19920917 (199244)	6p	H01M004-58
US 5221453	A	19930622 (199326)	6p	C25B011-06
EP 478303	A3	19920819 (199337)		
IL 99344	A	19960119 (199616)		H01M006-14
EP 478303	B1	19960515 (199624)	EN 7p	H01M004-48

R: DE FR GB NL SE

DE 69119524	E	19960620 (199630)		H01M004-48
JP 3115377	B2	20001204 (200065)	6p	H01M004-58

ADT EP 478303 A EP 1991-308741 19910925; CA 2051247 A CA 1991-2051247 19910912; JP 04262368 A JP 1991-274980 19910927; US 5221453 A US 1990-589120 19900927; EP 478303 A3 EP 1991-308741 19910925; IL 99344 A IL 1991-99344 19910829; EP 478303 B1 EP 1991-308741 19910925; DE 69119524 E DE 1991-619524 19910925, EP 1991-308741 19910925; JP 3115377 B2 JP 1991-274980 19910927

FDT DE 69119524 E Based on EP 478303; JP 3115377 B2 Previous Publ. JP 04262368

PRAI US 1990-589120 19900927

REP No-SR.Pub; 1.Jnl.Ref; EP 380058; JP 03093628; 01Jnl.Ref

IC ICM C25B011-06; H01M004-48; H01M004-54; H01M004-58; H01M006-14  
ICS C01G031-00; H01M004-04; H01M004-06; H01M004-08; H01M004-62; H01M006-16

AB EP 478303 A UPAB: 19931123  
New cathode member for an **electrochemical cell** comprises **silver vanadium oxide** prepared by a chemical combination or addition reaction. It further comprises 1) a binder material comprising methyl cellulose, ethylene propylene diene terpolymer EPDM, polyethylene, polypropylene, **fluorinated** ethylene propylene FEP or Teflon, and 2) a conductive material comprising carbon black or graphite. The use of the cathode material for **electrochemical cells** is also claimed.  
USE/ADVANTAGE - The cell maintains a higher pulse voltage than cells using **silver vanadium oxide** prepared by decomposition, leading to a decrease of charge time and an increase in cell life. Preparation is also easier. The cells containing the cathode material are useful for cardiac defibrillators.  
1/3  
11

FS CPI EPI  
FA AB; GI; DCN  
MC CPI: A12-E06; E35-B; E35-N; L03-E01B8  
EPI: X16-E01C1

L75 ANSWER 29 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1993:629991 CAPLUS  
DN 119:229991  
ED Entered STN: 27 Nov 1993  
TI Feasibility study of sulfone-based electrolytes for a medium-temperature reserve cell concept  
AU Giwa, C. O.  
CS Aerosp. Div., Def. Res. Agency, Farnborough/Hampshire, GU14 6TD, UK

- SO Proceedings of the International Power Sources Symposium (1992), 35th,  
215-18  
CODEN: PIPSEG
- DT Journal
- LA English
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 76
- AB A feasibility study was performed on materials for a medium-temperature  
(178-270°) reserve primary **battery**, which is activated by  
melting Li salt-sulfone mixture in order to provide elec. power. The aim  
was to define performance parameters for use as a high-energy d.  
**battery** capable of c.d. 5-50 mA/cm<sup>2</sup>. The cathodes used was  
Ag<sub>2</sub>CrO<sub>4</sub> and V<sub>6</sub>O<sub>13</sub>. The most promising test **battery** used Ag<sub>2</sub>CrO<sub>4</sub>  
cathode, di-p-tolylsulfone-LiClO<sub>4</sub> electrolyte, and Li-Al alloy anode.  
This **battery** achieved maximum c.d. of 40 mA/cm<sup>2</sup>. Some  
sulfone-based **batteries** exhibited high voltage drops due to the  
high internal resistance. These **batteries** can be used to power  
a **heat** sensor.
- ST sulfone electrolyte feasibility study **battery**; lithium silver  
chromate **battery** sulfone electrolyte; vanadium oxide lithium  
**battery** sulfone electrolyte
- IT **Battery** electrolytes  
(lithium salt-sulfone, elec. conductivity of)
- IT **Batteries**, primary  
(lithium-aluminum alloy/**silver** chromate and lithium-aluminum  
alloy/**vanadium oxide**, with sulfone-based  
electrolyte, performance of)
- IT Electric conductivity and conduction  
(of lithium salt-sulfone electrolytes)
- IT 1070-92-4 151144-93-3  
RL: USES (Uses)  
(electrolyte containing lithium hexafluoroarsenate and, elec. conductivity  
of, for **batteries**)
- IT 67-71-0, Dimethylsulfone  
RL: USES (Uses)  
(electrolyte containing lithium perchlorate and, elec. conductivity of, for  
**batteries**)
- IT 599-66-6, Di-p-tolylsulfone  
RL: USES (Uses)  
(electrolyte containing lithium salt and, elec. conductivity of, for  
**batteries**)
- IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate  
29935-35-1, Lithium hexafluoroarsenate 33454-82-9  
RL: USES (Uses)  
(electrolyte containing sulfone and, elec. conductivity of, for **batteries**  
)
- IT 3112-79-6 21467-59-4  
RL: USES (Uses)  
(electrolyte containing, lithium **batteries** with, performance of)

L75 ANSWER 30 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

KOROMA EIC1700

AN 1991:474604 CAPLUS  
 DN 115:74604  
 ED Entered STN: 23 Aug 1991  
 TI Method for synthesis of **silver vanadium composite oxide**  
 IN Yamamura, Koji; Takada, Kazunori; Kondo, Shigeo; Kobayashi, Naomichi; Sato, Noryuki; Yoshida, Sakae  
 PA Matsushita Electric Industrial Co., Ltd., Japan; Nippon Muki Kagaku Kogyo K. K.  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C01G031-00  
 ICS C22B011-00  
 ICA H01M006-18  
 CC 49-3 (Industrial Inorganic Chemicals)  
 Section cross-reference(s): 52

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 03093628	A2	19910418	JP 1989-229720	19890904
	JP 07025550	B4	19950322		
PRAI	JP 1989-229720		19890904		

AB Composite oxide Ag<sub>0.7</sub>V<sub>2</sub>O<sub>5</sub> is manufactured by mixing and agitating Ag powder of ≤300 mesh and V<sub>2</sub>O<sub>5</sub> powder (primary particle diameter ≤10 μm) at a mol ratio of 0.7:1 to form a mixed powder, packing in a quartz glass tube, **heating** to 600° at 50°/h, firing at 600° under reduced pressure (e.g., ≤10-1 Torr) or inert gas atmospheric (e.g., N, Ar, He) for a period of time (e.g., 24-72 h), and cooling to 100° at 50°/h. Optionally, the mixed powder can be agitated and fired for >1 times. The product is used for electrode active material of all-solid secondary **batteries**.

ST **silver vanadium composite oxide**; electrode active material secondary **battery**

IT **Batteries**, secondary  
 (all-solid, **silver vanadium composite oxide**  
 as active material for, manufacture of)

IT Electrodes  
 (**battery, silver vanadium composite oxide** as active material for, manufacture of)

IT 126044-10-8P, **Silver vanadium oxide**  
 (Ag<sub>0.7</sub>V<sub>2</sub>O<sub>5</sub>)

RL: IMF (Industrial manufacture); PREP (Preparation)  
 (manufacture of, from silver and vanadium pentoxide, as electrode active material, for all-solid secondary **batteries**)

IT 1314-62-1, **Vanadium oxide** (V<sub>2</sub>O<sub>5</sub>), uses and miscellaneous

RL: USES (Uses)  
 (**silver vanadium composite oxide** manufacture from **silver** and, as electrode active material, for all-solid secondary **batteries**)

IT 7440-22-4, **Silver**, uses and miscellaneous

RL: USES (Uses)

(**silver vanadium** composite **oxide** manufacture  
from **vanadium** pentoxide and, as electrode active material,  
for all-solid secondary **batteries**)

L75 ANSWER 31 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:432577 CAPLUS

DN 115:32577

ED Entered STN: 27 Jul 1991

TI Solid-electrolyte **batteries**

IN Takada, Kazunori; Yamamura, Yasuharu; Kondo, Shigeo

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Eur. Pat. Appl., 27 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M004-48

ICS H01M010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 380058	A2	19900801	EP 1990-101322	19900123
	EP 380058	A3	19910529		
	EP 380058	B1	19950405		
	R: DE, FR, GB				
	JP 02195659	A2	19900802	JP 1989-15317	19890124
	JP 06044492	B4	19940608		
	JP 02247978	A2	19901003	JP 1989-67063	19890317
	JP 06040495	B4	19940525		
	JP 03011763	A2	19910121	JP 1989-147897	19890609
	JP 07066830	B4	19950719		
	JP 07069354	B4	19950726	JP 1989-216346	19890823
	US 4965151	A	19901023	US 1990-468555	19900123
PRAI	JP 1989-15317		19890124		
	JP 1989-67063		19890317		
	JP 1989-147897		19890609		
	JP 1989-216346		19890823		

AB The title **batteries** comprise  $\geq 1$  pairs of electrodes and Ag+-conductive solid electrolyte layers disposed between the electrodes, where  $\geq 1$  electrodes contain a Ag-containing transition metal (V) oxide as the active mass. The **batteries** operate at high temps., have high energy d., excellent charge-discharge performance, and can be used as solid-state analog memory **batteries** having satisfactory linear relationship between the electricity and the terminal voltage. Thus, a 1:0.7 mixture of V2O5 and Ag was ground and **heated** to obtain Ag0.7V2O5 for use in electrodes.

ST **silver vanadium oxide** electrode

**battery**; solid state secondary **battery**

IT Electrodes

(**battery**, **silver**-insertable **vanadium**

oxide, manufacture of)

IT 7440-22-4, Silver, uses and miscellaneous  
 RL: USES (Uses)  
 (electrodes insertable with, vanadium oxide, for solid-electrolyte  
**batteries**)

IT 12306-24-0, **Silver vanadium oxide** (AgV2O5)  
 116813-28-6, **Silver vanadium oxide**  
 (Ag0.8V2O5) 126044-10-8, **Silver vanadium**  
**oxide** (Ag0.7V2O5) 127672-83-7, **Silver vanadium**  
**oxide** (Ag0.5V2O5) 131314-85-7, **Silver vanadium**  
**oxide** (Ag0.3V2O5) 131500-86-2, **Silver vanadium**  
**oxide** (Ag0.6V2O5) 131559-61-0, **Silver vanadium**  
**oxide** (Ag1.2V2O5) 131559-62-1, **Silver vanadium**  
**oxide** (Ag0.65V2O5)  
 RL: USES (Uses)  
 (electrodes, for solid-state **batteries**)

IT 1314-62-1, Vanadium oxide (V2O5), uses and miscellaneous  
 RL: USES (Uses)  
 (electrodes, silver-insertable, for solid-electrolyte **batteries**  
 )

IT 39390-08-4, Silver tungsten iodide oxide (Ag6WI4O4) 116066-05-8, Silver  
 (diphosphate) iodide (Ag1.75(P2O7)0.25I0.75) 116098-49-8, Molybdenum  
 silver iodide oxide (MoAg5I3O4) 131500-81-7, **Silver**  
**vanadium iodide oxide** (Ag11V4I5O13) 131500-82-8,  
 Silver iodide silicate (Ag7I3(SiO4)) 133854-71-4, Silver chromate iodide  
 (Ag6(Cr2O7)I4)  
 RL: USES (Uses)  
 (electrolyte, for solid-state **batteries**)

L75 ANSWER 32 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1990:23571 CAPLUS  
 DN 112:23571  
 ED Entered STN: 21 Jan 1990  
 TI Secondary lithium **batteries**  
 IN Inubushi, Akyoshi  
 PA Otsuka Chemical Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM H01M004-58  
 ICS H01M004-48; H01M004-50; H01M004-52; H01M004-54; H01M004-56  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 01231271	A2	19890914	JP 1988-57662	19880310
	JP 2724350	B2	19980309		
PRAI	JP 1988-57662		19880310		

AB Cathodes for the title **batteries** are amorphous mixts. of V2O5  
 containing  $\geq 1$  of Na2O, K2O, Rb2O, Cs2O, BeO, MgO, CaO, SrO, ZrO2,  
 Nb2O5, Ta2O5, Cr2O3, MnO2, Fe2O3, Co2O3, NiO, ZnO, CdO, Ag2O, Al2O3,

Ga2O3, As2O3, PbO, Tl2O3, CeO2, Nd2O3, Y2O3, and Sc2O3 (or compds. producing these oxides by **heating** or melting) prepared by quenching molten mixts. **Batteries** using the invention cathodes have high energy/weight ratio and long cycle life.

ST lithium **battery** mixed oxide cathode; vanadium oxide **battery** cathode additive

IT Cathodes  
(**battery**, vanadium oxide, amorphous, metal oxide additives in, for long cycle life)

IT 1304-56-9, Beryllium oxide (BeO) 1305-78-8, Calcia, uses and miscellaneous 1306-19-0, Cadmium oxide (CdO), uses and miscellaneous 1306-38-3, Cerium oxide (CeO2), uses and miscellaneous 1308-04-9, Cobalt oxide (Co2O3) 1308-38-9, Chromium oxide (Cr2O3), uses and miscellaneous 1309-37-1, Iron oxide (Fe2O3), uses and miscellaneous 1309-48-4, Magnesia, uses and miscellaneous 1313-13-9, Manganese oxide (MnO2), uses and miscellaneous 1313-59-3, Sodium oxide (Na2O), uses and miscellaneous 1313-96-8, Niobium oxide (Nb2O5) 1313-97-9, Neodymium oxide (Nd2O3) 1313-99-1, Nickel oxide (NiO), uses and miscellaneous 1314-11-0, Strontia, uses and miscellaneous 1314-13-2, Zinc oxide (ZnO), uses and miscellaneous 1314-23-4, Zirconia, uses and miscellaneous 1314-32-5, Thallium oxide (Tl2O3) 1314-36-9, Yttrium oxide (Y2O3), uses and miscellaneous 1314-61-0, Tantalum oxide (Ta2O5) 1317-36-8, Lead oxide (PbO), uses and miscellaneous 1327-53-3, Arsenic oxide (As2O3) 1344-28-1, Alumina, uses and miscellaneous 12024-21-4, Gallium oxide (Ga2O3) 12060-08-1, Scandium oxide (Sc2O3) 12136-45-7, Potassium oxide (K2O), uses and miscellaneous 18088-11-4, Rubidium oxide (Rb2O) 20281-00-9, Cesium oxide (Cs2O) 20667-12-3, **Silver oxide** (Ag2O)

RL: USES (Uses)  
(cathodes containing, **vanadium oxide**, amorphous, for lithium **batteries**)

IT 1314-62-1, Vanadium oxide (V2O5), uses and miscellaneous

RL: USES (Uses)  
(cathodes, amorphous, metal oxide additives in, for lithium **batteries**)

L75 ANSWER 33 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:500407 CAPLUS

DN 111:100407

ED Entered STN: 16 Sep 1989

TI Nonaqueous **batteries** with amorphous oxide cathodes

IN Yamaki, Junichi; Sakurai, Yoji; Oosaki, Takahisa; Yamada, Shuji; Sawa, Takao; Hashimoto, Susumu

PA Nippon Telegraph and Telephone Public Corp., Japan; Toshiba Corp.

SO Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M004-48  
ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 01128354	A2	19890522	JP 1987-282970	19871111
PRAI	JP 1987-282970		19871111		
AB	V2O5-based compns. are <b>heated</b> at $\geq 1200^\circ$ and below their decomposition point and quenched to obtain cathodes for the title <b>batteries</b> . Typically the cathode compns. are (V2O5) <sub>100-xZx</sub> (Z = B2O3, P2O5, SiO2, Bi2O3, TeO2, WO3, MoO2, NbO2, GeO2, Ag2O, CuO, PbO, Sb2O3, SnO2, TiO2; $0 \leq x \leq 30$ ). These <b>batteries</b> have high capacity, long lifetime, and storage stability.				
ST	<b>battery</b> amorphous oxide cathode; vanadium oxide amorphous cathode <b>battery</b>				
IT	Cathodes ( <b>battery</b> , vanadium oxide, amorphous, oxide additives for)				
IT	1303-86-2, Boron oxide (B2O3), uses and miscellaneous 1304-76-3, Bismuth oxide (Bi2O3), uses and miscellaneous 1309-64-4, Antimony oxide (Sb2O3), uses and miscellaneous 1310-53-8, Germanium oxide (GeO2), uses and miscellaneous 1314-35-8, Tungsten oxide (WO3), uses and miscellaneous 1314-56-3, Phosphorus oxide (P2O5), uses and miscellaneous 1317-36-8, Lead oxide (PbO), uses and miscellaneous 1317-38-0, Copper oxide (CuO), uses and miscellaneous 7446-07-3, Tellurium oxide (TeO2) 7631-86-9, Silicon oxide (SiO2), uses and miscellaneous 12034-59-2, Niobium oxide (NbO2) 13463-67-7, Titanium oxide (TiO2), uses and miscellaneous 18282-10-5, Tin oxide (SnO2) 18868-43-4, Molybdenum oxide (MoO2) 20667-12-3, <b>Silver oxide</b> (Ag2O)				
RL:	USES (Uses) (cathodes from amorphous <b>vanadium oxide</b> containing, for secondary <b>batteries</b> )				
IT	1314-62-1, Vanadium pentoxide, uses and miscellaneous				
RL:	USES (Uses) (cathodes, metal oxide-containing amorphous, for secondary <b>batteries</b> )				
L75	ANSWER 34 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN				
AN	1987:518277 CAPLUS				
DN	107:118277				
ED	Entered STN: 05 Oct 1987				
TI	<b>Heat</b> dissipation from lithium/ <b>silver vanadium oxide</b> cells during storage and low-rate discharge				
AU	Bergman, G. M.; Ebel, S. J.; Takeuchi, E. S.; Keister, P.				
CS	Wilson Greatbatch Ltd., New York, NY, 14031, USA				
SO	Journal of Power Sources (1987), 20(3-4), 179-85 CODEN: JPSODZ; ISSN: 0378-7753				
DT	Journal				
LA	English				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 69				
AB	By attributing all of the <b>heat</b> dissipating from Li-AgV2Ox discharge test cells to polarization and self-discharge, microcalorimetry measurements under load estimate 3.4, 2.5, 1.4, and 0.5% self-discharge/test year for the 10.0, 20.0, 38.3, and 80.6 kQ cells, resp. Assuming that the contribution to total Li loss from parasitic Li discharge is				



negligible, the calorimetry data from the storage cells and the Li assay results from the 10.0 k $\Omega$  test cells estimated  $\leq 0.8\%$  self-discharge/yr on test. Contributions to the total **heat** dissipation from polarization and entropy were negligible for the cells. The excess **heat** dissipated from the discharge test cells was attributed to non-Faradaic contributions and/or parasitic side reactions.

ST lithium **silver vanadium oxide**

**battery**; **heat** dissipation lithium **battery** discharge

IT **Heat**

(dissipation of, from lithium-**silver vanadium oxide batteries**, in storage and low-rate discharge)

IT **Batteries**, primary

(lithium-**silver vanadium oxide**, storage and low-rate discharge of, **heat** dissipation in)

L75 ANSWER 35 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1988:78626 CAPLUS

DN 108:78626

ED Entered STN: 05 Mar 1988

TI Lithium/**silver vanadium oxide**

**batteries** with various **silver** to **vanadium** ratios

AU Takeuchi, Esther Sans; Piliero, Pamela

CS Wilson Greatbatch Ltd., Clarence, NY, 14031, USA

SO Journal of Power Sources (1987), 21(2), 133-41

CODEN: JPSODZ; ISSN: 0378-7753

DT Journal

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

AB In the discharge of Li-Ag<sub>x</sub>V<sub>2</sub>O<sub>y</sub> (x = 0.021-2.0, y = 5.25-6.0)

**batteries** under constant resistance loads of 1, 2, and 5 k $\Omega$ , the cells with a AgV<sub>2</sub>O<sub>5.5</sub> cathode delivered the highest capacities and had the least voltage drop under applied constant current pulses. The theor. energy d. of the 3 Li-AgV<sub>2</sub>O<sub>5.5</sub> couple is 1.5 W-h/g. The oxides were prepared by **heat** treatment of AgNO<sub>3</sub> and V<sub>2</sub>O<sub>5</sub> and analyzed by atomic absorption spectroscopy and x-ray powder diffraction. The reaction of AgV oxide with BuLi indicated that the material with a composition of AgV<sub>2</sub>O<sub>5.5</sub> had the highest volumetric capacity.

ST lithium **silver vanadium oxide**

**battery**

IT Cathodes

(**battery**, **silver vanadium oxide**

, composition and structure of, **silver** content effect on, lithium **battery** performance in relation to)

IT 111520-17-3 111520-18-4 111520-19-5 111520-20-8 111520-21-9

111520-22-0

RL: USES (Uses)

(cathodes, composition and structure of, lithium **battery** performance in relation to)

IT 1314-62-1, uses and miscellaneous 12026-36-7, **Silver vanadium oxide** (Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub>) 13497-94-4, **Silver**

**vanadium oxide** (AgVO3) 111520-23-1  
RL: USES (Uses)  
(phase, in **silver vanadium oxide** for  
**battery** cathodes)

IT 109-72-8, n-Butyllithium, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with **silver vanadium oxide**,  
cathode volumetric capacity in relation to, for **batteries**)

L75 ANSWER 36 OF 43 COMPENDEX COPYRIGHT 2004 EEI on STN  
AN 1987(12):196861 COMPENDEX DN \*8734902; 8712122061  
TI **HEAT DISSIPATION FROM LITHIUM/SILVER VANADIUM  
OXIDE CELLS DURING STORAGE AND LOW-RATE DISCHARGE.**  
AU Bergman, G.M. (Wilson Greatbatch Ltd, Clarence, NY, USA); Ebel, S.J.;  
Takeuchi, E.S.; Keister, P.  
SO J Power Sources v 20 n 3-4 Jul 1987, Pap Presented at the 3rd Int Meet on  
Lithium Batteries, Part II, Kyoto, Jpn, May 27-30 1986 p 179-185  
CODEN: JPSODZ ISSN: 0378-7753  
PY 1986  
DT Journal  
TC Application; Experimental  
LA English  
AB This article discusses a lithium/**silver vanadium  
oxide** (SVO) **battery**, suitable for medical implantation,  
which is currently under development. The voltage of the Li/SVO discharge  
curve slopes from 3.2 v at beginning-of-life to 2.0 v at end-of-life,  
allowing for convenient monitoring of the depth-of-discharge. From  
discharge, storage, and calorimetry tests, this **battery** has  
proved to be a high energy density, low internal impedance, low  
self-discharge power source for low to moderate rate applications. (Edited  
author abstract) 3 refs.  
CC 702 Electric Batteries & Fuel Cells; 802 Chemical Apparatus & Plants; 542  
Light Metals & Alloys; 549 Nonferrous Metals & Alloys  
CT \*ELECTRIC **BATTERIES**; ELECTROLYTIC CELLS; ELECTROLYTES, SOLID;  
ELECTRODES, ELECTROCHEMICAL; LITHIUM AND ALLOYS: Applications  
ST LITHIUM-SILVER VANADIUM OXIDE CELL;  
**BATTERY DISCHARGE PERFORMANCE**  
ET Li

L75 ANSWER 37 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1981:535877 CAPLUS  
DN 95:135877  
ED Entered STN: 12 May 1984  
TI Cathodes and their use in **batteries**  
IN Liang, Charles C.; Bolster, Elisab; Murphy, Robert M.  
PA Wilson Greatbatch Ltd., USA  
SO Ger. Offen., 31 pp.  
CODEN: GWXXBX  
DT Patent  
LA German  
IC H01M004-48; H01M006-14  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3031554	A1	19810625	DE 1980-3031554	19800821
	US 4310609	A	19820112	US 1979-104384	19791217
	US 4391729	A	19830705	US 1980-164891	19800630
	SE 8005496	A	19810618	SE 1980-5496	19800731
	SE 451920	B	19871102		
	SE 451920	C	19880211		
	GB 2065957	A	19810701	GB 1980-25039	19800731
	GB 2065957	B2	19831005		
	IL 60748	A1	19840330	IL 1980-60748	19800803
	CA 1147385	A1	19830531	CA 1980-357565	19800804
	AU 8061195	A1	19810625	AU 1980-61195	19800808
	AU 541718	B2	19850117		
	FR 2471673	A1	19810619	FR 1980-18207	19800820
	FR 2471673	B1	19870626		
	JP 56093266	A2	19810728	JP 1980-170186	19801201
	JP 01028464	B4	19890602		
	NL 8006638	A	19810716	NL 1980-6638	19801205
	NL 190299	B	19930802		
	NL 190299	C	19940103		

PRAI US 1979-104384 19791217

AB Alkali-metal **batteries** with ion-conducting electrolytes have elec. conducting cathodes of  $\geq 1$  oxide of Groups IB-VIIB and VIII metals. The metal oxide is prepared by thermal decomposition of a corresponding

metal compound. Thus, V<sub>2</sub>O<sub>5</sub> was prepared by decomposition of NH<sub>4</sub>VO<sub>3</sub>, and Ag-V oxide

with a Ag to V ratio of 0.31 was prepared by **heating** an aqueous AgNO<sub>3</sub>-V<sub>2</sub>O<sub>5</sub> mixture. A cathode was prepared by pressing a mixture of the Ag-V oxide 1.82, graphite powder 0.3, and Teflon 7A binder 0.3 g. A Li **battery** with thus prepared oxide cathode, a separator, and an electrolyte of M LiClO<sub>4</sub> in propylene carbonate-50 volume% MeOCH<sub>2</sub>CH<sub>2</sub>OMe had an open-circuit voltage of 3.93 V immediately after the fabrication. The discharge curve for the **battery** with a 1.5-k $\Omega$  load was approx. linear.

ST lithium **battery** cathode manuf; **silver vanadium oxide battery** cathode

IT **Batteries**, primary  
(lithium-metal oxide, performance of)

IT Cathodes  
(**battery**, metal oxide, manufacture and performance of lithium-)

IT 1314-62-1P, uses and miscellaneous 11105-02-5P 12789-09-2P  
20667-12-3P

RL: PREP (Preparation); USES (Uses)  
(cathodes, **battery**, manufacture and performance of)

L75 ANSWER 38 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1975:60090 CAPLUS

DN 82:60090

ED Entered STN: 12 May 1984

KOROMA EIC1700

TI Alkaline **battery** seal and protective coating  
 IN Winger, Jerrold  
 PA Union Carbide Corp.  
 SO Brit., 8 pp.  
 CODEN: BRXXAA  
 DT Patent  
 LA English  
 IC H01M  
 CC 42-10 (Coatings, Inks, and Related Products)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1362497	A	19740807	GB 1972-38994	19720822
PRAI	GB 1972-38994		19720822		

AB Prevention of wetting of surfaces by alkaline electrolyte in **galvanic cells** for hearing aids and watches was achieved by coating the surfaces with a fatty **polyamide**. Thus, nylon gasket seals for Ag2O/Zn cells with KOH levels of 15 mg were coated twice from solns. containing 20 weight% fatty **polyamide** Z 610 [54018-54-1] in 50:50 volume% Me2CHOH-PhMe. After 381 days at room temperature no salting or wetting had occurred in 98% of the **batteries** and salting had occurred in 2%, whereas in **batteries** containing gaskets coated by dipping once in 35 g wax/l. C2HCl3, no salting or wetting had occurred in 43% of the **batteries** but salting had occurred in 57% and wetting in 53% of the **batteries**.

ST fatty **polyamide** coating **battery**; secondary **battery** corrosion prevention; watch **battery** corrosion prevention; hearing aid **battery** corrosion

IT Hearing  
 (aids, **batteries** for, fatty **polyamide** coating for corrosion prevention in)

IT Fatty acids, polymers  
 RL: USES (Uses)  
 (dimer, **polyamides** containing, for coating for corrosion prevention in **galvanic cells** for hearing aids and watches)

IT Watches  
 (elec., **batteries** for, fatty **polyamide** coatings for corrosion prevention in)

IT **Polyamides**, uses and miscellaneous  
 RL: USES (Uses)  
 (fatty acid-, for coating for corrosion prevention in **galvanic cells** for hearing aids and watches)

IT Coating materials  
 (fatty **polyamides**, for corrosion prevention in **galvanic cells** for hearing aids and watches)

IT Electric amplifiers  
 (hearing aids, fatty **polyamide** coatings for corrosion prevention in cells for)

IT **Batteries**, primary  
 (silver-zinc, fatty **polyamide** coatings for corrosion prevention in)

IT 54018-54-1

RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, in **batteries** for hearing aids and watches, for  
corrosion prevention)

L75 ANSWER 39 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1967:439930 CAPLUS

DN 67:39930

ED Entered STN: 12 May 1984

TI Apparatus for the determination of oxygen in gases

IN Kober, Roland

SO Ger. (East), 4 pp.

CODEN: GEXXA8

DT Patent

LA German

IC G01N

CC 79 (Inorganic Analytical Chemistry)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DD 53900		19670205	DD	19651108
	DE 1673213			DE	
	GB 1151911			GB	

AB The title apparatus, a **galvanic cell**, consists of: (1) a corrodible outside **electrode** of Pb, Zn, Fe, Sb, or Cd in the form of a 1-2-m. long tube of 3-9 mm. inside diameter, coated with polyethylene, poly(vinyl chloride), or **polyamide**; (2) a fabric hose soaked with an electrolyte, preferably 10-30% KOH, and serving as diaphragm; and (3) an inert inside **electrode** of Au, Pt, **Ag**, **Cu**, or **Cu** alloys or amalgams, in the form of a wire, around which a spiral of a single or multiple thread is wound, or consisting of crystals or wire cuttings. The gas flow is measured by a meter, another measuring device determine the amp./sec. When the current is closed, O is absorbed quant. by the electrolyte and reduced to OH- by the inert **electrode**. No calibration is required. In a continuous gas flow, 0.1-20,000 ppm. O can be determined, in a discontinuous flow 10-4-100% O in 0.1-1.0 ml. gas. The error is  $\leq \pm 5\%$ . At a flow rate of up to 50 ml./min. the O content can be calculated by Faraday's law from the elec. charge created by the reduction. The results are independent of the temperature of the cell. The apparatus is not sensitive to impurities in the gas

and outside mech. influences.

ST OXYGEN DETN GASES APP; GASES ANAL O APP

IT Gases, analysis

(oxygen determination in, apparatus for)

IT 7782-44-7, analysis

RL: ANT (Analyte); ANST (Analytical study)

(determination of, in gases, apparatus for)

L75 ANSWER 40 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1967:522070 CAPLUS

DN 67:122070

KOROMA EIC1700

ED Entered STN: 12 May 1984  
 TI Method and apparatus for quantitative determination of oxygen and peroxides or hydroperoxides in liquids  
 IN Kober, Roland  
 SO Ger. (East), 5 pp.  
 CODEN: GEXXA8  
 DT Patent  
 LA German  
 IC G01N  
 CC 80 (Organic Analytical Chemistry)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	DD 53354		19670105	DD	19650908
	DE 1673212			DE	
	GB 1148052			GB	

AB A **galvanic cell** for continuous and discontinuous quant. determination of O and inorg. and organic peroxides or hydroperoxides in liquids consists of hollow corrodible **metal electrodes** (1-2 m. long, diameter 3-9 mm.) of Pb, Zn, Fe, Sn, or Cd coated with a plastic (polyethylene, poly(vinyl chloride), or **polyamide**), and an inert single or multiple wire of Au, Pt, **Ag**, Cu, or their alloys inserted coaxially within the hollow **electrode** and separated by a diaphragm. The cell is connected to a current measuring apparatus

and an integrator. One equivalent of the produced substance corresponds to a f., and the content is calculated according substance to Faraday's law by the equation  $m = (M/Fz) \int I dt$ , where  $m$  = mass of the depolarizer in g.,  $\int I dt$  = integral of the time changes of current strength in amp. sec.,  $F$  = Faraday number,  $M$  = mol. weight of the depolarizer, and  $z$  = number of transmitted electrons. The cell utilizes 10-30% KOH as the electrolyte which may contain other solvents. A depolarizer concentration of 10<sup>-7</sup> - 100%

can be measured with an accuracy of  $\pm 2\%$ . Thus, in a **galvanic cell** utilizing Pb and **Ag electrodes**, a sample that contained cumene hydroperoxide was continuously added at 500 mg./min. to a stream of 15% KOH at 2-4 ml./min. An elec. current of 90.5  $\mu$ amps. was obtained which corresponded to 0.85% cumene hydroperoxide. In a discontinuous process, 30 mg. of a cumene-hydroperoxide-containing sample was added to the electrolyte stream. An elec. charge of 5.46  $\mu$ amps. was obtained which corresponds to 0.86% of cumene hydroperoxide. The reproducibility is  $\pm 5\%$ .

ST OXYGEN DETN; PEROXIDES DETN; HYDROPEROXIDES DETN

IT Liquids  
 (oxygen, hydroperoxides and peroxides determination in, apparatus for)

IT 7782-44-7, analysis 14691-59-9 14915-07-2, analysis  
 RL: ANT (Analyte); ANST (Analytical study)  
 (determination of, in liqs., apparatus for)

L75 ANSWER 41 OF 43 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1967:121548 CAPLUS  
 DN 66:121548

KOROMA EIC1700

ED Entered STN: 12 May 1984  
 TI **Galvanic cell**  
 PA Varta Pertrix-Union G.m.b.H.  
 SO Neth. Appl., 6 pp.  
 CODEN: NAXXAN  
 DT Patent  
 LA Dutch  
 IC H01M  
 CC 77 (Electrochemistry)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	NL 6602861		19661104		
	US 3440110		19690000	US	
PRAI	DE		19650503		

AB A **galvanic cell** is described in which the **metal** casing forms one **electrode** and the cover forms the other. An elastic packing is pressed between the casing and the cover through which both **electrodes** are elec. insulated with respect to each other. The packing consists of, e.g., polyethylene or **polyamide**. The **metal** casing is provided with a support ring which is partially attached to it. The packing which encloses the cover edge and the upper part of the support ring which is free from the casing consists of 3 concentric rings of which the outer ring is protruded upward and the rings are connected with each other by means of bridges which are perpendicular to the rings so that the packing is one complete unit.

ST **BATTERIES GALVANIC; GALVANIC CELLS;**  
**CELLS GALVANIC; PRIMARY CELLS**

IT **Batteries**, primary  
 (insulating packing for, from polyethylene or **polyamide**)

IT **Polyamides**, uses and miscellaneous  
 RL: USES (Uses)

(insulating packing, for primary **batteries**)

IT Ethylene, polymers, uses and miscellaneous  
 RL: USES (Uses)

(insulating packing for primary **batteries**)

L75 ANSWER 42 OF 43 JAPIO (C) 2004 JPO on STN  
 AN 2002-270185 JAPIO

TI ELECTROCHEMICAL **BATTERY** HAVING ELECTRODE MADE OF  
**VANADIUM OXIDE SILVER** COATED ON CURRENT  
 COLLECTOR

IN TAKEUCHI ESTHER S; LEISING RANDOLPH A; PALAZZO MARCUS  
 PA WILSON GREATBATCH LTD

PI JP 2002270185 A 20020920 Heisei

AI JP 2001-402673 (JP2001402673 Heisei) 20011212

PRAI US 2000-256504 20001215

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002

IC ICM H01M004-62

ICS H01M002-26; H01M004-02; H01M004-04; H01M004-06; H01M004-58;  
 H01M004-66; H01M006-16; H01M010-40

AB PROBLEM TO BE SOLVED: To provide binder blending being insoluble in a non-aqueous solvent and capable of enduring the exposure to a high temperature without reducing discharge efficiency as a binder for electrode of a lithium **battery**.  
SOLUTION: An SVO electrochemical **battery** having a high efficiency possible output is provided. A cathode is manufacture by applying a mixture composed of an active substance, an electrical conductive additive, and the mixing binder to an aluminum foil current collector. This mixing binder is composed of a mixture of **heat**-treated polyamic acid and PVDF. The use of the **heat**- treated polyamic acid enables the maintenance of adhesion of electric conductivity to the current collector, and a PVDF part of the binder gives the flexibility. A particularly preferable pair of electrodes are composed of a lithium/**vanadium oxide silver** (Li/SVO) chemical system, and this binder mixture enables coating of active slurry of SVO on the current collector without causing peeling off between layers.  
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L75 ANSWER 43 OF 43 JAPIO (C) 2004 JPO on STN  
AN 2001-351631 JAPIO  
TI COMPOSITION METHOD FOR PREPARING SINGLE PHASE MIXED METAL OXIDE CATHODE ACTIVE MATERIAL HAVING SMALL SURFACE AREA FOR INCORPORATION INTO ALKALINE METAL ELECTROCHEMICAL **BATTERY**  
IN TAKEUCHI ESTHER S; LEISING RANDOLPH A  
PA WILSON GREATBATCH LTD  
PI JP 2001351631 A 20011221 Heisei  
AI JP 2001-113703 (JP2001113703 Heisei) 20010412  
PRAI US 2000-549910 20000414  
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2001  
IC ICM H01M004-58  
ICS H01M004-02; H01M010-40  
AB PROBLEM TO BE SOLVED: To provide a non-aqueous alkaline metal/transition metal oxide electrochemical **battery**, in particular, lithium/**vanadium silver oxide** electrochemical **battery** which is designed for the application of large current pulse discharge while showing reduced or hardly visible voltage delay and reduced Rdc rise.  
SOLUTION: First, a mixture of dissoluble **silver** salt and **vanadium oxide** is **heated** at the temperature which is higher by approximately 2&deg;C-40&deg;C than the dissolution temperature of the mixture and then it is **heated** at the temperature range of approximately 490&deg;C-520&deg;C and prepared of composing a single phase **vanadium silver oxide**. This **vanadium silver oxide** is combined with a lithium anode and activated in a non-aqueous electrolyte for obtaining an electrochemical **battery** of improved high energy density having increased pulse voltage and reduced voltage delay.  
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